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In an effort to better utilize our human resources by providing for all concerned a greater understanding of the college choice process, this study proposed a college choice process model, and analyzed 4 variables. Analysis of data obtained by questionnaire from 3 different schools yielded the following conclusions: (1) students planning to attend college were better informed about college than those not planning to attend, (2) females recognized greater need for college than males, (3) rural and suburban students were better informed about college than urban students, (4) seniors were better informed than students in other class levels, and as a student progressed through class levels he became better informed about college. It was recommended that additional research and study be done in this area. Appendices contain the questionnaire and directions for its administration. (SW)

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ANALYSIS OF FACTORS WHICH DETERMINE CHOICE OF COLLEGE AMONG URBAN, SUBURBAN, AND RURAL HIGH SCHOOL STUDENTS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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October, 1967

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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CHAPTER I

INTRODUCTION

I. BACKGROUND OF THE PROBLEM

In our society one of the most important decisions a young person has to make is whether or not to attend college. Our complex and mobile society places a premium on education. The United States Department of Labor recently indicated, "A strengthening of education at all levels is one of the keys to full development of the country's human resources, both present and potential, and to a reduction of unemployment and poverty."[1] That education is being recognized as increasingly important in our society is shown by government projections that institutions of higher education will confer 750,000 Bachelor's degrees by 1972, compared to the 500,000 conferred in 1965.[2] This same report estimated that by 1975, 8,800,000 high school graduates will enter institutions of higher education compared with the 5,200,000 who entered in the fall of 1965.[3] The 1975 figure represents an increase of 69 per cent in the number of entering students over the ten year period. In this same period of time the college-age population, the population between the ages of eighteen and twenty-one, will increase from 12,100,000 to 15,800,000, an increase of 31 per cent.[4]

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[1] United States Department of Labor, A Report on Manpower Requirements; Resources, Utilization, and Training (Washington, D.C.: Government Printing Office, March, 1964), p. 2.

[2] United States Department of Health, Education, and Welfare, Health Education and Welfare Trends (Washington, D.C.: Government Printing Office, 1963), p. 48.

[3] *Ibid.*, p. 45.

More and more of our country's educable youth will attend college. However, the United States Department of Health, Education, and Welfare has shown dramatically that many students who should attend college do not enroll, that many students who attend college do not finish, and that many students who finish college could have made a better initial choice of college or college major.[5] These students may well represent a loss or misappropriation of human resources. It is reasonable to assume maximum development of individual potential will result from minimizing faulty college decision-making. At the present time, however, there is a lack of knowledge about and understanding of how students choose a college.

Douvan and Kaye, after a thorough review of the motivational factors in college entrance, concluded, "If we know little about the decision to go to college, we know even less about how adolescents choose the particular schools they enter."[6] Most research to date has stressed factors external to the students as primary influences in determining a student's choice of college. The failure to focus on internal factors--the student as a decision-maker--constitutes a major gap in our research regarding college choice.

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[4] Ibid., p. 41.

[5] Robert E. Iffert, Retention and Withdrawal of College Students, United States Department of Health, Education, and Welfare, Bulletin No. 1 (Washington, D.C.: Government Printing Office, 1958), pp. 1-171.

Research indicates that the majority of college bound students decide to attend college while they are in high school. Nearly all college bound students choose a specific college and are accepted by that college during their high school years. The public schools have special agents, school counselors, whose responsibility it is to see that students' college decisions are made on the basis of adequate information about self and environment. However, the high school counselors who assist youths to make college plans work without a theory or model. Herr, in discussing the paradox existing between counselor education and counselor practice in relation to guidance of the college bound, indicated that "the professional literature that deals with pre-college guidance or counseling is conspicuously lacking in theory and research."[7] The author concluded:

> Counselor educators in their research, writing, teaching roles need to give further consideration to

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[6] Elizabeth Douvan and Carol Kaye, "Motivational Factors in College Entrance," The American College: A Psychological and Social Interpretation of the Higher Learning (New York: John W. Wiley and Sons, 1962), p. 216.

[7] Edward L. Herr, "Guidance for the College Bound," Personnel and Guidance Journal, Vo. 45, No. 1 (1966), p. 47.

> the intermediate nature of the college decision as part of a larger developmental process. In this sense, they must reinforce the role of the school counselor in pre-college counseling as one which recognizes the college decision as a uniquely personal one to the counselee.[8]

II. STATEMENT OF THE PROBLEM

This study proposes a model for the college choice process and will analyze, in three different secondary schools, four selected variables of the college choice process. The schools are urban, rural, and suburban. The four variables are information about college, need to consider college, concern about college planning, and involvement in college planning.

The following hypotheses, stated in the null form, will be examined in this study:

1. *There are no differences among the selected schools in relation to the four variables of information, need, concern, and involvement considering class level, sex, and college plan of the students.*

2. *There are no differences within each selected school in relation to the four variables of information, need, concern, and involvement considering class level, sex, and college plan of the students.*

---

[8] *Ibid.*, p. 50.

III. DEFINITION OF TERMS

The following terms are unique to this study and need operational definition.

College choice process.--The process of decision-making that each student goes through before actual attendance, or nonattendance, at a specific college.

Information.--That information about college considered important for any prospective college student to possess.

Need.--The intellectual realization that a college education is a desirable goal in our society.

Concern.--The expression of concern, doubt, or uncertainty about college as a future goal.

Involvement.--The action(s) taken by a student to resolve college choice; visiting college(s), writing for information, applying for admission.

College bound students.--Those students indicating that they definitely plan to attend college after high school graduation.

Non-college bound students.--Those students indicating that they definitely will not attend college after high school graduation.

IV. SIGNIFICANCE OF THE STUDY

This study will promote a better utilization of our human resources by assisting society's agents to understand better the college choice process. Such understanding may lead to the development of strategies that will assist each student maximally to develop his individual potentialities. The study has particular significance for school counselors, secondary school students, parents, and counselor educators.

School counselors will be the primary beneficiaries of this study. They will be able to evaluate their present college counseling programs. From this base, appropriate developmental strategies can be devised for assisting the student in the college choice process. Specifically, this may mean establishing new or more comprehensive programs to encourage earlier student concern and involvement in college choice. It may mean developing group programs at the freshman and sophomore years to give students college information. In some schools where only a small percentage of students will attend college, it may mean longitudinal programs geared to developing the recognition that higher education is increasingly necessary in our society.

Students will benefit from well organized, developmental college informational programs. More information about college should be possessed by all students. Also, there should be greater personal involvement by all students in college choice--that is, whether to attend or not to attend college. All students need to evaluate information and themselves when making the college decision.

Parents also will benefit from organized college information programs in schools. They will become involved early in the student's high school years in knowing about college and about some of the important factors that enter into college choice.

This study can benefit counselor educators as they assist counselors-in-training to know this one important job component, as well as to fit this component into a longitudinal, developmental model. Within this context the potential counselor can then explore both individual and group methods to assist students in becoming better informed about college and in moving toward more involvement in college choice.

V. LIMITATIONS OF THE STUDY

In any study there are certain limitations that should be borne in mind. The following limitations apply to this study:

1. This study involves the entire populations of three high schools. Any generalization of the findings to other populations is at best tenuous.

2. Though the schools selected for this study appear by demographic criteria to be suburban, rural, and urban types, there is no assurance that they are indeed truly representative of such types.

3. The results of this study are based on one sample of student behavior at a specific point-in-time. Perhaps at another point-in-time, using the same instrument, student behavior might be different.

4. Only usable questionnaires are included in the study. No attempt was made to administer the questionnaire to students absent the day of the testing or to readminister the questionnaire to students who failed to complete the questionnaire during the initial administration.

5. It is assumed that students responded honestly and accurately to the questionnaires.

VI. ORGANIZATION OF THE STUDY

Chapter I has presented an introduction to the study. A review of related research is found in Chapter II. Chapter III describes the schools participating in the study and the procedures of the study. Results and conclusions are contained in Chapter IV. The summary and recommendations are presented in Chapter V.

CHAPTER II

REVIEW OF RELATED RESEARCH

I. INTRODUCTION

There is much literature available concerning the value of a college education, how to prepare for college, and how to succeed in college. However, there is little research evidence available that relates to the college choice process. The research reported in this chapter is a comprehensive review of significant research published during the past decade which relates specifically to the college choice process.

II. RESEARCH RELATING TO FACTORS INFLUENCING COLLEGE CHOICE

Research to date has emphasized the role of external factors in college choice. Such factors as socio-economic status of family, father's occupation, place of residence, family income, and social class have all been related to the choice of a college.

Beezer and Hjelm gathered data from various investigations to provide information on the factors relating to college attendance. They concluded that finances, parental values regarding education, educational and occupational level of parents, plans of peers and academic accredation of the high school all influence the student's decision to attend college.[1]

Caro conducted structured interviews with 161 male juniors in four public high schools in a large metropolitan area. He compared the responses of selected lower and middle class youth in an effort to explore the relationship between the students' perception of immediate post-high school activities and dominant occupational goals. The author concluded:

> Both in terms of possible academic and financial barriers, middle class boys tended to perceive college as a more open alternative than did lower class boys. Middle class boys also suggested the presence of stronger social pressures from both parents and peers pushing them towards college.[2]

Ellis studied the factors and circumstances related to educational discontinuance of able high school students. The research provided a comparison of nonintellectual variables which may impinge on the decision to attend or not to attend college. One hundred capable male graduates were interviewed two years after high school graduation. Fifty had enrolled in college immediately after high school. The other fifty, though equally qualified for college, had not enrolled. It was found that:

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[1] Robert H. Beezer and Howard F. Hjelm, Factors Related to College Attendance, United States Office of Education, Department of Health, Education, and Welfare, Cooperative Research Monograph No. 8 (Washington, D.C.: Government Printing Office, 1961), pp. 38-40.

[2] Francis G. Caro, "A Social Class Comparison of Attitudes of Male High School Students Toward College and Dominant Occupational Goals," Dissertation Abstracts, Vol. 23 (1962), p. 3012.

> 1. Factors of family background distinguished the two groups. Non-college families were of lower socio-economic standing, had a greater number of children, and a lower educational level than college families.
>
> 2. Plans of the non-college men were indefinite and less clearly formulated than the plans of college men.
>
> 3. College men identified with the father in the family.
>
> 4. Non-college men asked for more supervised study, individual help from teachers, and periodic counseling.[3]

Cicourel and Kitsuse, in a comprehensive study designed to assess the effect of high school bureaucracy on student educational decision-making stated:

> Our materials indicate first of all that in the bureaucratically organized high school the day-to-day activities of the school personnel effectively control the access of students to the limited number of curriculums available, particularly their access to the curriculum most instrumental for upward mobility, i.e., the college preparatory curriculum.[4]

Forrest studied 165 National Merit scholars, who transferred from their originally chosen college. He concluded that for talented students multiple criteria determine college choice:

> Even though a student may possess the financial and intellectual ability to do so, selecting a college on the basis of factors of type of control, size, sex, cost, religion, geographical location, curriculum, or prestige, may be inappropriate. This is true because there are other factors related to compatibility and

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[3] Betty W. Ellis, "To Attend or Not to Attend College: Some Factors in the Decision of Qualified High School Graduates," Dissertation Abstracts, Vol. 23 (1962), pp. 2419-2420.

[4] Aaron V. Cicourel and John I. Kitsuse, The Educational Decision Makers (New York: Bobbs-Merrill Company, 1963), p. 135.

> success in college which are of equal or greater importance and colleges vary greatly on these factors.[5]

Holland conducted a study relating student choice of college to a number of personal and cultural forces which preliminary studies by the author had suggested were meaningful correlates of college choice. The population for this study consisted of a representative group of National Merit scholars and their parents. Using four institutional classifications, students' choice of college was correlated with questionnaire responses and inventory scale scores. The author indicated:

> The selection of an undergraduate institution is probably the outcome of a complex set of forces including student goals, abilities, and personality, which interact with parental values, education, socio-economic status, and parental image of the "best" and ideal college. Like many personal decisions, the choice patterns found here are probably not readily amenable to change because they are grounded in cultural and personal development.[6]

Rossi and Coleman collected data from 8,700 students in nine northern Illinois high schools. They surveyed students in grades nine to twelve in order to discover what factors lead a given high school student to continue his education by attending college and to what extent students are satisfied with their choice. Their results indicated that sex, intelligence, family socio-economic status, father's occupation, finances, and school attended play interrelated roles in college choice.[7]

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[5] Aubrey Forrest, "Counseling Talented Students on College Choice," Personnel and Guidance Journal, Vol. 40, No. 1 (1961), p. 47.

[6] John L. Holland, "Determinants of College Choice," College and University, Vol. 35, No. 1 (1959), p. 26.

In a limited study, Campi used survey data taken by the United States Census Bureau in October, 1960, to show that "the educational level which a person attains is a product of both the education of the father and the family income."[8]

Berdie and Hood explored some of the more obscure determinants of post-high school plans by investigating social and personal attitudes, values, and experiences of high school students. Ninety-seven per cent of all the seniors in Minnesota high schools completed a questionnaire concerned with their plans following high school graduation. The questionnaire also included background data and twenty-five questions taken from the Minnesota Counseling Inventory. Aptitude test results and high school ranks were available for all students. Results indicated that students contemplating college saw themselves as being more sociable, less shy, and having fewer conflicts with family and authorities than students not planning to attend college. Boys and girls from metropolitan and non-farm areas, remarkably similar in social relations and conformity, were different from farm youth. By sex, girls had better social relations and were more conforming than boys. This study suggests that attitudes and values (sociability, conflicts with others) have a significant relationship to the college choice process as they are reflected by sex, geographic location, and future plans.[9]

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[7] Peter Rossi and James S. Coleman, Determinants and Consequences of College Choice (Chicago: University of Chicago; National Opinion Research Center, September, 1964), pp. 1-135.

[8] Florence Campi, "Educational Attainment and Family Background," New Directions in Health, Education, and Welfare, United States Office of Education, Department of Health, Education, and Welfare (Washington, D.C.: Government Printing Office, June, 1961), pp. 168-169.

In another study, Berdie and Hood investigated the extent to which college attendance could be predicted by taking into consideration a wide range of variables--ability, school achievement, socio-economic, cultural, and personality factors. Although the authors caution that their findings are only approximations, they found a marked relationship between geographic location and college plans and a marked relationship between sex and college plans. They concluded that no one predictor variable is best when seeking to account for college prediction for groups of students. They stated:

> Each student consists of a focal point within an active field of forces and the field of each person is unique. The same forces tend to be present in each field--parents, friends, teachers, counselors--but the strength of these forces and the manner in which they influence student behavior vary from person to person.[10]

Dole studied certain demographic attributes and psychological reasons for educational choice through a series of questionnaires administered to six groups: sixth, ninth, and twelfth graders, State University freshmen and seniors, and adults enrolled in evening programs. The author concluded:

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[9] Ralph F. Berdie and Albert B. Hood, "Personal Values and Attitudes as Determinants of Post-High School Plans," Personnel and Guidance Journal, Vol. 42, No. 8 (1964), pp. 754-759.

[10] Ralph F. Berdie and Albert B. Hood, "How Effectively Do We Predict Plans for College Attendance?," Personnel and Guidance Journal, Vol. 44, No. 5 (1966), p. 493.

> This study was seen as supporting an emphasis on both nomothetic and ideographic approaches to (educational) choice behavior. Choices are made by individuals in social contexts who are striving toward self-actualization, within a series of life-stages and a sequence of educational and occupational positions.[11]

Although Dole presented good background research supporting the importance of sociological characteristics (social class, father's occupation, parental education, family income, national-ethnic and religious background, and place of residence, sex) and psychological characteristics (talent, school achievement, confidence, and expressed vocational objectives) as determinants related to educational choice, his main conclusion was that, except for the decision to attend college, far less seems to be known about educational choice than vocational choice.[12]

In spite of the many studies that relate to factors in college choice only four studies attempt to place these factors in a model or to explain, longitudinally, the college choice process.

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[11] Arthur A. Dole, A Study of Values as Determinants of Educational and Vocational Choices in Hawaii, United States Office of Education, Department of Health, Education, and Welfare, Cooperative Research Project No. 757 (Washington, D.C.: Government Printing Office, 1961), p. 148.

[12] Ibid., pp. 1-159.

Dole, in a study of the determinants of college choice similar to his study reported above, said that:

> Analysis of the relative discriminatory power of the three classes of reported determinants at the six levels provides the basis for a tentative model for the process of educational choice making. It was seen that these relationships varied with educational level and with the type of choice presented. Thus, values appeared to increase in differential importance for the mature groups. It is assumed that perceived sex, class, cultural, and economic self-characteristics contribute to expectations as to which positions and occupational objectives are most congruent. Interests may develop first and then values, representing sets and attitudes, perhaps follow, consistent with aspired roles. External influences, representing models and reality testing experiences, afford changing frames of reference. Availability of those influences, in turn, is determined by cultural and educational contexts, as well as by previous decisions. The foregoing model should reduce the temptation to stress a single determinant--an overemphasis for example on science, security, or satisfaction.[13]

Seron and Bowersox proposed a model for the college choice process based on student attitudes toward college choice and the amount of information a student possesses about college. The authors viewed college choice:

> . . . as a process that takes place over a period of time. This process involves, on the part of the student, a change from no or little awareness of college to finally choosing a college. The changes that take place within the student over time may be characterized by various stages of development.[14]

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[13] Arthur A. Dole, "Reported Determinants of Educational Choice," Personnel and Guidance Journal, Vol. 42, No. 6 (1964), p. 569.

[14] Merron S. Seron and Susan R. Bowersox, "Evaluation of a College Information Program and Implications for Defining the College Choice Process in the Secondary School" (unpublished research report, Skokie, Illinois: Niles Township High Schools, January, 1963), p. 1.

The authors concluded that:

> As the student matures, becomes more knowledgeable, progresses from the freshman to senior year, there may be attitudinal changes that will take place regarding college choice. The different attitudinal categories may become relatively weaker or stronger. This has implications for the individual student's attitudes as well as group attitudes. Both the recognition of the above behavior and the attempt to better describe the pattern of behavior lend support to the rationale for the college choice process and further validity to the instrument testing the rationale.[15]

In another study, Seron compared senior high school students with freshman high school students in relation to the amount of information students possess about college and the attitudes of students toward college choice. The results were seen as further support for the model of the college choice process proposed in the Seron and Bowersox study.[16]

Presently under way is a study being conducted by the Center for the Study of Higher Education at the University of California, Berkeley. The College Entrance Examination Board is providing initial financial support. Over the next six years over 90,000 students in four states will participate in this project called SCOPE (for "School to College: Opportunities for Post-Secondary Education").

> The overall aim of the study is to learn far more than is now known about the entire process whereby

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[15] *Ibid.*, p. 2.

[16] Merron S. Seron, "Information, Attitudes, and Involvement in the College Choice Process" (unpublished research report; University of Missouri, May, 1964), pp. 1-51.

> students move through secondary school into college or noncollege activities; how they get information about colleges or vocations; the relative importance of parental, school, and general community influences on their decisions; when various stages in the decision-making occur; and how students view their decisions in retrospect. It is expected that the findings will prove useful to almost everyone involved in the decision-making process.[17]

The above research relating to factors in college choice indicates that there are a multiplicity of factors which must be considered in evaluating a student's choice to attend or not attend college.

III. RESEARCH RELATING TO WHEN A STUDENT MAKES HIS COLLEGE CHOICE

Nearly all specific college choice takes place while the student is in high school. Foskett and Martin studied 588 University of Oregon freshmen to find out what had influenced their choice of college. They divided their sample into three groups: (1) those who had always planned to go to college and decided on their college before the senior year, (2) those who always planned on college but decided on a specific college their senior year, and (3) those who did not plan on college attendance until during or after their senior year. The authors found "80 per cent were college bound from the start, though 70 per cent kept open-minded as to which college at least until their senior year."[18]

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[17] College Board News (May, 1966), p. 3.

[18] John Foskett and Walter Martin, "How Students Choose Their Alma Mater," Overview, Vol. 2, No. 6 (1961), p. 23.

Kerr surveyed 1350 college-bound seniors with a fourteen item questionnaire "designed to assess student perceptions of the role and effectiveness of the school counselor in aiding them with the college decision-making process."[19] Results indicated 63.5 per cent of the students made the decision to attend college while in high school. Ninety-seven per cent of the college-bound decided on their specific college choice while in high school.[20]

Mosier administered a questionnaire to over one thousand entering college freshmen. All students answered two questions: (1) At what grade level did you decide to go to college? (2) At what grade level did you decide to come to this particular college? Results indicated: (1) Fifty-three and one-tenth per cent of the students decided to go to college while in high school; 40.4 per cent had decided to attend college prior to entering high school; 6.3 per cent decided to attend college after graduation from high school. (2) Sixty-nine per cent decided on a specific college while in high school; 18.4 per cent decided on a specific college after graduation from high school; 12.6 per cent had decided on a college prior to attending high school.[21]

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[19] William Kerr, "Student Perceptions of Counselor Role in the College Decision," Personnel and Guidance Journal, Vol. 41, No. 4 (1962), p. 337.

[20] Ibid., pp. 337-338.

[21] Leslie Mosier, "When Do Young People Make Decisions About College?," School Review, Vol. 63, No. 2 (1959), pp. 158-159.

The above research indicates that the majority of students decide to attend college during their high school years, and that nearly all students decide on a specific college during the time they are in high school.

IV. RESEARCH RELATING TO THE SCHOOL COUNSELOR'S ROLE IN THE COLLEGE CHOICE PROCESS

Within the secondary school setting the school counselor is the prime source of direct encouragement and information available to students as they plan their educational futures. Grant investigated the counselor's role as perceived by students--how students felt the counselor could be of effective assistance to them. Students filled out an open-ended questionnaire asking their reaction to nine situations. The situations were grouped into three areas: (1) educational planning, (2) vocational planning, and (3) personal-emotional problems. Students indicated whether they would turn to (1) a school counselor, (2) other school personnel, or (3) non-school people. The author concluded:

> The high school seniors in these nine Central New York high schools perceive the counselor as being most able to make acceptable contributions to them in the vocational and educational planning areas.[22]

As a corollary to the above study aimed at students' perceptions of counselor role, Grant asked counselors, teachers, and administrators to respond to the same questionnaire to which the students responded. This was a repeat of his original study except that he used school personnel as subjects instead of students. Eighty-two counselors, seventy-six administrators, and two hundred teachers selected at random from twelve schools in New York State participated in the study. Results of the study indicated:

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[22] Claude W. Grant, "How Students Perceive the Counselor's Role," Personnel and Guidance Journal, Vol. 32, No. 7 (1954), p. 388.

> The counselor's role in secondary schools is rather definitely defined within the educational and vocational planning areas, especially in relation to other school personnel.[23]

Tennyson studied how the counselor spends his time and how the counselor feels that he should spend his time. His results indicated that counselors spend their time, and feel their time should be spent, primarily in assisting students in educational-academic areas.[24]

Vassallo and Kindred conducted a questionnaire survey among school counselors in 339 schools in five Middle Atlantic states. They were interested in assessing the duties and responsibilities of the school counselor. They found that, in rank order of frequency, the number one duty of the school counselor is to "assist pupils making decisions about higher education."[25]

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[23] Claude W. Grant, "The Counselor's Role," Personnel and Guidance Journal, Vol. 33, No. 1 (1954), p. 76.

[24] Willard W. Tennyson, "Time: The Counselor's Dilemma!," Personnel and Guidance Journal, Vol. 37, No. 2 (1958), pp. 129-135.

[25] Theodore Vassallo and Leslie W. Kindred, "How Counseling can be Improved," Nation's Schools, Vol. 59, No. 4 (1957), p. 59.

Bergstein studied how parents of students in grades six, eight, ten, and twelve perceived the role of the counselor in the secondary school: specifically, his helpfulness in the areas of educational planning, vocational planning, and personal-emotional adjustment. Results indicated that all groups of parents had similar high expectations of the role of the counselor. Parents at all four levels perceived the counselor to be more helpful with educational and vocational problems than with personal-emotional problems. Also, parents of sixth grade and high school pupils perceived school counselors to be more helpful in all areas than best friends or other school personnel.[26]

Bergstein and Grant, in a replication of Bergstein's original study described above, again found that "parents at all four grade levels perceived school counselors to be more helpful with educational and vocational problems than with personal-social-emotional problems."[27]

The above studies indicate that within the educational setting the school counselor is seen by school personnel, parents, and students as having the primary job responsibility of providing educational assistance to students.

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[26] Harry B. Bergstein, "A Study of Parents' Perceptions of the Role of School Counselors in a Selected Community," Dissertation Abstracts, Vol. 21 (1960), pp. 1124-1125.

[27] Harry B. Bergstein and Claude W. Grant, "How Parents Perceive the Counselor's Role," Personnel and Guidance Journal, Vol. 39, No. 9 (1961), p. 703.

Thus, the counselor is viewed as that person most knowledgeable in the area of educational planning or college choice. However, there is adequate research indicating that students primarily rely on persons other than school counselors for assistance in college planning.

Rossi and Coleman, in considering sources of information for students involved in the college choice process, stated:

> We would infer from our data that the family is not only the earliest source of discussion about college but that it also is the group with whom the student has his most specific and detailed discussions.[28]

Kerr found that 67.3 per cent of college-bound seniors felt parents were most valuable in rendering assistance in the college decision.[29]

Roemmich and Schmidt studied the extent to which school counselors actually provide college selection and college planning assistance as perceived by students. Three-page questionnaires were completed by 2,719 high school seniors in all San Diego City high schools and two San Diego County high schools. The authors concluded:

> Although school people feel that they are involved in the process of student educational planning, from this study parents, not school people, appear to be the significant groups who assist students. These results leave room for considerable speculation. (1) Does the perception of students that many of them make their own decisions reflect effective counseling? (2) Does the

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[28] Rossi and Coleman, op. cit., p. 38.

[29] Kerr, op. cit., p. 338.

> perception of students relative to assistance by counselors and teachers suggest the need for a reappraisal of present-day school counseling programs?[30]

Dole, studying the reasons students give for electing broad educational programs, found that though counselors ranked tenth overall among selected external influences upon the educational choices of males and females they ranked fifth during the years when college choice was taking place.[31]

Dole's findings are supported by Holder, whose study indicated that perhaps the counselor's qualitative relationship with students is more important than the counselor's quantitative relationship with students when it comes to utilizing sources of information and exercising an ultimate influence on the students' college choice decision.

Holder studied the communication behavior of students who decided to attend college and whose decision was realized. Specifically, the author sought (1) to identify those factors relevant to communication as students approached the college decision, and (2) to develop a model expressing a relationship between communication behavior and decision outcomes. Data for the study were obtained from two consecutive entering classes at Syracuse University by means of a questionnaire designed to probe different aspects of the students' college decision. Holder defined a communication source as any person who talked with the student about college. An information contact was defined as any discussion with the student about a particular facet of college. Within this context, high school counselors ranked tenth in communication sources identified by the students in order of number of contacts made. The author concluded:

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[30] Herman Roemmich and John L. Schmidt, "Student Perceptions of Assistance Provided by Counselors in College Planning," Personnel and Guidance Journal, Vol. 41, No. 2 (1962), p. 158.

[31] Dole (1964), op. cit., pp. 564-571.

> The conclusions of previous studies which found the opinion leader to be small and homogeneous did not hold in the case of the college-bound high school student. The communication sources played unique information roles in the facets of college they emphasized.[32]

Thus, as the student passes through high school the school counselor appears to assume a proportionately greater influence upon the student's educational choice. Cicourel and Kitsuse examined the counselor's position of authority and power as a validating agent for the student's future occupational opportunities and careers and concluded that the counselor and the bureaucratic school organization of which he is a part will play an increasing role in the educational choice process of future high school students.[33]

As the above studies indicate, many persons assist the student in the college choice process. Although the school counselor assumes a more important role as the student approaches choice resolution, he is perceived to have little overt, quantitative influence upon student college planning and college choice. Research does support, however, the counselor as having a covert, qualitative influence upon student college planning and college choice.

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[32] Harold D. Holder, "A Study of the Information Problems of High School Students in College Decision-Making," Dissertation Abstracts, Vol. 26 (1966), p. 5786.

[33] Cicourel and Kitsuse, op. cit., pp. 1-178.

V. RESEARCH RELATING TO THE NEED FOR EFFECTIVE COLLEGE CHOICE PROGRAMS IN THE SCHOOLS

Research has indicated that college choice takes place while the student is in high school and that the school's agents specifically designated to assist the student choose a college actually have little overt effect on a student's college decision. This seeming lack of school influence becomes an educational concern with the realization that not all students make an appropriate college decision.

Iffert conducted a survey of 13,700 men and women who enrolled in institutions of higher learning in the fall of 1950. He received a 60 per cent response to his questionnaire designed to study students who go to college in terms of their qualifications, their performances, and their reasons for entering and leaving college. He concluded:

> Student reports of reasons for going to college, interests in subject-fields, and financial resources plus institutional reports of student standing in high school graduating class and on college placement tests, showed that many students enrolled in institutions of higher education in which the prospects of completing their programs of study were very poor. A majority of the students who discontinued their higher educational programs

> attributed their withdrawal to factors identified with themselves rather than with the institutions they attended.[34]

Astin, in a four-year longitudinal study of 6,660 high aptitude students, studied the tendency for students to drop out of college before completing the B.A. degree. He concluded that:

> Except for financial problems, the causes given by male dropouts for leaving college are primarily internal in nature; indecision about the appropriate course of study, dissatisfaction with being a student, emotional problems, etc. Girls, on the other hand, appear to be more susceptible to external influences.[35]

Douvan and Kaye stated:

> The fact that this decision (college) is often based on vague impressions of college reputations rather than on any more refined knowledge of schools and their offerings heightens the college candidate's need for accurate information about schools."[36]

The authors concluded:

> The dropout and exchange rates in American colleges suggest that something goes seriously awry in this (college) choice process. The rates seem to reveal a widespread choice based on inappropriate or transitory needs. One suspects that better decisions could be

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[34] Robert E. Iffert, Retention and Withdrawal of College Students, U.S. Department of Health, Education, and Welfare, Bulletin No. 1 (Washington, D.C.: Government Printing Office, 1958), p. 109.

[35] Alexander W. Astin, "Personal and Environmental Factors Associated with College Dropouts Among High Aptitude Students," Journal of Educational Psychology, Vol. 55, No. 4 (1964), p. 225.

[36] Elizabeth Douvan and Carol Kaye, "Motivational Factors in College Entrance," The American College: A Psychological and Social Interpretation of the Higher Learning (New York: John W. Wiley and Sons, 1962), p. 222.

> made by more careful counseling of students at the time of the initial decision.[37]

The above studies suggest that the schools should play a more overt role in assisting the student in the college choice process. Specifically, counselors must consider the individual needs of each student and develop programs to meet these needs. As Berdie and Hood concluded:

> Programs to influence college decision--scholarships, publicity, talent identification--can succeed only if they provide for individual counseling that leads to an understanding for each student of his motives and background. Then society, through its agent, the counselor, perhaps can help each student sense what the student wants and use society's and the student's resources to satisfy his needs.[38]

Research suggests that if counselors are to develop programs attuned to the individual college choice needs of students then they must be aware of their own needs, limitations, and bias.

Seymour studied the perceptions of college environments held by students and counselors. He found that the perceptions of counselors and students are different from one another and from reality.[39] Astin studied the characteristics of 127,212 freshmen entered in 248 colleges and universities and cautioned:

The several college "guides" which are available to

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[37] Ibid., p. 223.

[38] Berdie and Hood (1966), op. cit., p. 493.

[39] Warren R. Seymour, "Perceptions of College Environments Held by Students and Counselors," Dissertation Abstracts, Vol. 26 (1966), p. 5250.

> the student contain a great deal of information about costs, curriculum, and general admission requirements, but they provide little information about the students who enroll at different institutions. Thus, the student choosing a college knows very little about one aspect of the college--his potential fellow students--which may make a profound difference in his actual college experience.[40]

Mehrens, commenting on counselor bias, stated:

> Objectively counselors are attuned to the interests and desires of the student as he (the student) enters into the process of making a choice in his own interest, but this awareness does not influence the subjective counselor feeling that college attendance is generally desirable.[41]

Also, counselors must be open to new ways of presenting information to students. Loughary, et al., reported a study describing the development and testing of a computer-counselor modeled after the behavior of one counselor. Called "autocoun," the computer-counselor dealt strictly with probability, using an expectancy table consistent with the one, model, counselor. A total of forty junior high school students experienced the computer-counselor for educational planning. The authors concluded that the present version of autocoun will not replace school counselors. This study demonstrated the operational feasibility and potential value of a computer-based pupil information system capable of interacting with students. The authors suggest that certain information guidance functions relating to college choice may be able to be assigned to machines and certain functions to counselors.[42]

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[40] Alexander W. Astin, "Some Characteristics of Student Bodies Entering Higher Educational Institutions," Journal of Educational Psychology, Vol. 55, No. 5 (1964), p. 274.

[41] William A. Mehrens, "The Use of Probability Information in Educators' Decision-Making," Dissertation Abstracts, Vol. 26 (1966), p. 5239.

Fully aware of personal and informational shortcomings inherent in the task, counselors need to establish longitudinal programs in the schools geared to assist students in the college decision. Hays and Rothney studied educational decision-making by superior secondary-school students and their parents and concluded:

> A student's chances of choosing wisely often depend on the decision-making experiences he has had in school and home settings, and his decisions are influenced by the degree of independence from adult authority which he has achieved.[43]

Perhaps, as suggested by the research, good student decision-making in relation to college choice means that the student himself becomes maximally involved and assumes maximum responsibility for the college decision. In this respect, it would appear that effective college choice programs in the schools need to pay particular attention to internal factors in college choice--the student as a decision-maker.

Clarke listed two requirements of "good" decision-making: (1) the decision-maker needs adequate information, and (2) the decision-maker needs an effective strategy for analyzing, organizing, and synthesizing that information in order to arrive at a choice.[44] These requirements for good decision-making lead to the following mandate for the school counselor: greater effort should be made to determine what specific information is relevant to the educational decisions faced by high school students, information should be gathered and organized, and students should be assisted to learn to use it effectively.

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[42] John N. Loughary, Defoss Frissen, and Robert Hurst, "Autocoun: A Computer-Based Automatic Counseling Simulation System," Personnel and Guidance Journal, Vol. 45, No. 1 (1966), pp. 4-16.

[43] Donald G. Hays and John W. Rothney, "Educational Decision-Making by Superior Secondary-School Students and Their Parents," Personnel and Guidance Journal, Vol. 40, No. 1 (1961), p. 26.

The need for college choice programs geared to individual students is present. And, as Mosier stated: "It is also apparent (from these data) that programs designed to promote serious considerations of a college education should be continual throughout high school."[45] The author concluded:

> The most important implication of these data for high school guidance counselors is that pre-college guidance toward proper consideration of college training, as well as toward the correct choice of a college, should be continuous and varied throughout the high school years.[46]

Research indicates the need for effective longitudinal college choice programs to be implemented in our nation's schools. Within this context, models of the college choice process and strategies for college decision-making need to be developed.

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[44] Robert Clarke, H. B. Gelatt, and Louis Levine, "A Decision-Making Paradigm for Local Guidance Research," _Personnel and Guidance Journal_, Vol. 44, No. 1 (1965), pp. 40-51.

[45] Mosier, _op. cit._, p. 159.

[46] _Ibid._

CHAPTER III

DESCRIPTION OF PARTICIPATING SCHOOLS AND PROCEDURES EMPLOYED IN THE STUDY

I. NATURE OF THE POPULATION

Selection of the communities.--Research by Berdie and Hood,[1,2] and Beezer and Hjelm,[3] confirm that a student's place of residence--urban, rural, suburban community--partially determines college attendance. The three schools involved in this study are representative of urban, rural, and suburban communities as defined by demographic criteria.

The 1960 census definition specifies that an urban population is composed of persons living in the following types of communities:

> (a) Places of 2,500 inhabitants or more incorporated as cities, boroughs, and villages, and towns (except in New England, New York, and Wisconsin, where "towns" are simply minor civil divisions of counties);

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[1] Ralph F. Berdie and Albert B. Hood, "Personal Values and Attitudes as Determinants of Post-High School Plans," Personnel and Guidance Journal, Vol. 42, No. 8 (1964), pp. 754-759.

[2] Ralph F. Berdie and Albert B. Hood, "How Effectively Do We Predict Plans for College Attendance?," Personnel and Guidance Journal, Vol. 44, No. 5 (1966), pp. 487-493.

[3] Robert H. Beezer and Howard F. Hjelm, Factors Related to College Attendance, U.S. Office of Education, Department of Health, Education, and Welfare, Cooperative Research Monograph No. 8 (Washington, D.C.: Government Printing Office, 1961), pp. 1-49.

> (b) the densely settled urban fringe, including both incorporated and unincorporated areas around cities of 50,000 or more;
>
> (c) unincorporated places of 2,500 inhabitants or more;
>
> (d) towns in New England and townships in New Jersey and Pennsylvania which contain no incorporated municipalities as subdivisions and have either 25,000 inhabitants or more or a population of 2,500 to 25,000 and a density of 1,500 persons or more per square mile; and
>
> (e) counties in states other than the New England states, New Jersey, and Pennsylvania that have no incorporated municipalities within their boundaries and have a density of 1,500 persons per square mile.
>
> In other words, the urban population comprises all persons living in urbanized areas and a place of 2,500 inhabitants or more outside urbanized areas. The population not classified as urban constitutes the rural population.[4]

The community specified as urban in this study is a central city of 175,000 people. This community meets the above demographic definition of an urban population as specified by the United States Census Bureau.

As indicated above, "The population not classified as urban constitutes the rural population."[5] The rural community in this study has no incorporated places with more than one thousand inhabitants and has a population density less than one thousand persons per square mile. It is well within the Census Bureau's demographic definition of rural.

In their discussion of the suburban community, Gist and Fava state:

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[4] U.S. Bureau of Census, U.S. Census of Population: 1960, Vol. I, Characteristics of the Population, Part A, Number of Inhabitants (Washington, D.C.: U.S. Government Printing Office, 1961), p. xii.

[5] Ibid.

> Suburbs are much-discussed but ill-defined. One reason for the variety of definitions is that the census provides no criteria for suburban status. In the voluminous literature on suburbs there are, however, two general approaches to the problem of definition. The first relies on objective, relatively easily measurable characteristics, such as demographic characteristics of the population or the type of land use. The following is an example of the first type of definition.
>
> A. An inclusive definition which has the virtues of simplicity and comparability defines as suburban all the territory within the census Metropolitan Statistical Area but outside the central cities.[6]

The community defined as suburban in this study has a population of 15,000 people and is located two-and-one-half miles west of the city limits of a central city with a population of 750,000 people. This suburban community is in the geographic center of the county surrounding the central city. On the basis of the above demographic definition the community involved in this study is definitely suburban.

Nature of the Urban School population.--Urban High School (the term to be used hereafter when referring to the high school in the urban community) is located on a 32.5 acre site in the center of a twenty-one square block attendance area in the northwest section of the central city. The area immediately surrounding Urban High School is primarily residential. The area contains retail businesses but no industry. Most of the residents are employed in the many heavy industries and plants surrounding the area. In a majority of families both parents work. On the basis of occupation, school authorities describe the residents as lower middle class.

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[6] Noel P. Gist and Sylvia F. Fava. Urban Society (New York: Thomas Y. Crowell Company, 1964), p. 183.

Changing residential patterns are affecting the composition of the population of Urban High School. At the present time the ninth to twelfth grade population of just under one thousand students is composed of one-third Negro students, one-third Caucasian students, and one-third Latin American students. The percentage of Negro and Latin American students is increasing. The dropout rate is only about 1 per cent, the lowest in the city.

The school administration of Urban High School is especially proud of "Operation Self-Help," a program developed over the past four years to build pride in the school. The program's success is indicated by the low dropout rate of students and by the school staff stability; only 8 of 120 teachers are planning to leave the system at the end of the school year. The school also takes pride in the great number of students involved in the extra-curricular program and the students' conduct in the community.

About 25 per cent of the graduates continue their education beyond high school. Almost exclusively these students attend branches of the two major state universities located in the central city and in an adjoining community. A majority of the graduates, male and female, enter the work force. Jobs are plentiful in the heavy industries and plants surrounding Urban High School. School counselors report that some males enter military service upon completion of high school and that some males and females marry soon after high school graduation.

The counseling program in Urban High School is administered by a Head Counselor. She acts as a liaison between the counseling staff in Urban High School and the "downtown" district-wide Director of Guidance, and also serves as one of the four counselors for grades nine through twelve. Each counselor is required to interview all his students at least twice a year. Counselors report that their contacts with students primarily concern educational and vocational problems. Relatively few contacts involve personal-emotional problems. Urban High School has many group programs designed to provide students with information in a variety of guidance areas. College Day, Career Day, speakers on vocations, speakers on military information, tours to industry and local businesses, and interviews with parents of eighth and tenth graders are some of the many programs organized and/or implemented by the guidance staff at Urban High School. Besides these local programs, the "downtown" Director of Guidance coordinates other, district-wide, informational programs for students.

As Table I indicates, 751 students from Urban High School participated in this study. This represents 80 per cent of the total student body in grades nine to twelve.

Students who were absent or students who did not complete the questionnaire were not included in the study.

TABLE I

NUMBER OF STUDENTS FROM THE URBAN HIGH SCHOOL PARTICIPATING IN THIS STUDY

	Freshman		Sophomore		Junior		Senior		
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
College Plan	57	75	71	59	46	43	40	37	428
No College Plan	36	56	33	44	39	44	21	50	323
Total	93	131	104	103	85	87	61	87	= 751

Nature of the Rural School population.--Rural High School (the term to be used hereafter to refer to the high school in the rural community) is located on a forty acre site surrounded by farmland. The school, serving a total population of seven thousand persons, is in the geographic center of the district--equidistant from three incorporated communities, each with less than one thousand inhabitants. Most of the residents are involved in agriculture. In recent years, however, an increasing number of persons have begun to work in factories. On the basis of occupation, school authorities describe the population as lower middle class.

The Rural High School district has undergone little change in the past ten years. Although a new expressway now passes through the school district, however, local officials do not foresee industry locating in the immediate area or additional population growth for the area. Only a slight increase in the number of entering high school students during the next few years is projected. Presently there are less than five hundred students in grades nine to twelve. Rural High School is considered an integrated school. Six per cent of the student body is non-white. This segment of the student population consists of Negro students who live in a small, all-Negro lower class settlement at the extreme northeast section of the district. School personnel indicate that it is rare for Negro students to graduate from Rural High School. About 7 to 10 per cent of the total student population drop out each year.

The school administration is very proud of student and staff morale. They feel that this high morale is due to the exceptional success enjoyed by Rural High School athletic teams. Well over half of the teaching staff is composed of male teachers. A majority of staff have Master's degrees and own their own homes. School officials at Rural High School are satisfied with their program and with the way they have maintained their traditions over the years. They look for very few changes in the years ahead.

Approximately 30 per cent of the graduates of Rural High School enter college. Nearly all these students attend state supported institutions--junior and senior colleges.

A recent survey conducted by the Guidance Director indicated that the majority of the 70 per cent not planning college will seek employment in factories, offices, and in the semiskilled trades. About 12 per cent of the graduates plan to continue their education at two-year trade or technical schools. Very few graduates plan to seek employment in agricultural occupations.

At the present time there is one counselor for the entire school district (1,682 pupils in grades one to twelve). He is called the Guidance Director. His office is in Rural High School and he is expected to spend his time counseling with Urban High School students, teaching group guidance courses in the junior high, and acting as a consultant for elementary school teachers. The Guidance Director reports that during the past year he has seen each of the 385 students in the high school at least once. Most of the interviews involve assisting students with educational and vocational planning. The Guidance Director spends little time with students' personal-emotional problems. Though the Guidance Director has plans for the future development of the guidance program at Rural High School at present there is no organized, structured guidance program.

As Table II indicates, 413 students from Rural High School participated in this study. This represents 86 per cent of the student body. Students absent from school or who did not complete the questionnaire were not included in the study.

TABLE II

NUMBER OF STUDENTS FROM THE RURAL HIGH SCHOOL PARTICIPATING IN THIS STUDY

	Freshman		Sophomore		Junior		Senior		
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
College Plan	32	35	36	18	24	19	29	16	209
No College Plan	23	17	27	26	23	27	34	26	203
Total	55	52	63	44	47	46	63	42	=412

Nature of the Suburban School population.--Suburban High School (the term to be used hereafter to refer to the high school in the suburban community) is located on a seven-acre site in the center of the school district. The boundaries of the school district and the local community are identical. Most residents are employed in business, office, managerial, and skilled trades occupations. School authorities describe the community as upper middle class.

For the past five years the population of the Suburban High School district has been stable. This has also been true of the high school population. It is projected that there will be little change in the number of people in either the community or the high school in the immediate future. Suburban High School is integrated. About 10 per cent of the student body are non-white. The non-white population includes many different racial groups. Recently the school received nation-wide publicity for its "League of Nations" student population. Less than 1 per cent of the students who enter high school drop out before graduation.

The school administration is extremely proud of the school-community relationship. There is also great school pride in the athletic and extracurricular programs.

Slightly more than 80 per cent of the graduates of Suburban High School enter college. Although a majority of the graduates attend state supported institutions of higher education, many attend private colleges within and outside the state. Many of the students that do not continue their education in colleges will enter beauty, secretarial, or trade and technical schools. Very few graduates enter the work force immediately upon completion of high school.

At the present time there is a Director of Guidance for the entire school district. He is the only staff member in the school district with a Doctorate degree and has been with the system for twenty years. Although his primary responsibilities relate to administration of the district-wide guidance program he is also asked to write proposals for government funds and to do a great amount of public relations work for the school district. There are two full-time counselors and one part-time counselor for grades ten to twelve. Grade nine has a full-time counselor. The majority of counselor contacts with students pertain to students' educational-vocational problems. However, counselors in Suburban High

School spend a good deal of their time with students who have personal-emotional problems. Although the counseling program has been established for a long period of time, only recently has there been an interest in planning longitudinal information programs geared to the college-bound student. The Guidance Director has recently completed a longitudinal follow-up survey of the district's graduates and hopes to use this survey as a basis for developing group informational programs involving school personnel, students, and the community.

As Table III indicates, 459 students from Suburban High School participated in this study. This number represents 94 per cent of the student body in grades nine to twelve. Students absent from school or students not completing the questionnaire were not included in the population used in this study.

TABLE III

NUMBER OF STUDENTS FROM THE SUBURBAN HIGH SCHOOL PARTICIPATING IN THIS STUDY

	Freshman		Sophomore		Junior		Senior		
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
College Plan	67	43	42	41	50	46	46	37	372
No College Plan	15	19	12	15	5	4	8	9	87
Total	82	62	54	56	55	50	54	46 =	459

II. A DEVELOPMENTAL MODEL OF THE COLLEGE CHOICE PROCESS

Adapting Super's[7] concept of vocational maturity, it is possible to think of college choice as a process that takes place over a period of time. This process involves, on the part of the student, a change from little or no awareness of college to the choice of a specific college and actual college attendance. The student's final choice of a college may be based in part upon the information he possesses about college, his attitudes toward college, and the extent to which he is actually involved in the college selection process. The choice process may be conceptualized as having various overlapping stages of development through which a student progresses. These overlapping stages can be placed on a continuum. The following College Choice Continuum illustrates the developmental model of the college choice process described above:

COLLEGE CHOICE CONTINUUM

Movement in the College Choice Process	Unawareness	Indifference	Questioning	Action	Resolution
College Information Possessed by the Student	Little				A Great Deal

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[7] Donald E. Super, *The Psychology of Careers* (New York: Harper and Brothers, 1957), pp. 183-191.

Stages of development defined:

Unawareness of college as a possible future concern.

Indifference toward college choice although aware that some day a choice must be made.

Questioning about college--characterized by early exploration such as talking to adults or reading about college.

Action in choosing a college--characterized by more intense exploration such as writing for catalogs and visiting colleges.

Resolution of college choice--the actual decision to attend college or not to attend college and implementation of that decision.

III. QUESTIONNAIRE DEVELOPMENT

The questionnaire used in this study, the Pre-College Planning Questionnaire (see Appendix A), was developed by Seron and Bowersox[8] within the context of the model of the college choice process described in Part II of this chapter. It is a two-part questionnaire designed to measure four variables in the college choice process: amount of information about college possessed by the student, his need for college planning, his concern about college planning, and his involvement in college planning.

Part one of the questionnaire is an objective, factual scale concerned with the information about college considered important for secondary school students to possess. It consists of twenty-five multiple choice statements with four possible answers and twenty-five true-or-false items. The fifty questions were chosen from a total of eighty-seven original questions screened independently by thirteen judges (high school counselors with backgrounds in psychology and measurement). Where eleven of the thirteen judges agreed on the clarity and significance of an item it was accepted for inclusion in the questionnaire.

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[8] Merron S. Seron and Susan H. Bowersox, "Evaluation of a College Information Program and Implications for Defining the College Choice Process in the Secondary School" (unpublished research report; Skokie, Illinois: Niles Township High Schools, January, 1963), pp. 1-7.

The second part of the questionnaire measures student's need to consider college, his concern with college planning, and his involvement in college planning. Under each of these three categories a series of five items was devised containing five statements each. These statements deal with intellectual ability, long-range academic planning, appropriateness of planning, family involvement in planning, and financial planning. All of the resulting fifteen items were structured so that each one of the five possible choices represented a stage, from unawareness to resolution, consistent with the college choice process continuum. Five judges (four high school counselors with backgrounds in testing and measurement and one lay college graduate with work in education and psychology) were independently given a brief written explanation of the three categories and asked to arrange each series of items within one of the three categories. Where four of the five judges agreed upon the proper category for an item it was considered properly placed. The proper category for all fifteen of the pairs of items were unanimously agreed upon by the judges.

The questionnaire was tested in two high schools and found to discriminate among students in the areas of information, need, concern, and involvement. Seron and Bowersox used the questionnaire both before and after a ninth-grade college information program and found that the instrument was sensitive to changes in students' information, need, concern, and involvement.[9] Seron administered the questionnaire to ninth and twelfth graders and found that differences existed among grade level, sex, and college plan when considering the amount of students' information, need, concern, and involvement.[10]

In addition to the content and construct validity described above, Seron[11] reported item analysis reliability coefficients for the fifty objective questions of the questionnaire. Using Hoyt's analysis of variance technique, the following reliability coefficients were reported for 459 students in a suburban high school: 100 seniors (r=.73); 105 juniors (r=.80); 110 sophomores (r=.75); 144 freshmen (r=.74).

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[9] Merron S. Seron, "Information, Attitudes, and Involvement in the College Choice Process" (unpublished research report; University of Missouri: May, 1964), pp. 1-15.

[10] Seron and Bowersox, op. cit.

[11] Merron S. Seron (unpublished research analysis, Evanston, Illinois: Northwestern University, 1967).

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IV. DATA GATHERING PROCEDURES

Questionnaire administration.--The questionnaire used in this study was administered to the entire school populations of Urban High School, Rural High School, and Suburban High School within a three-week period in the last month of the 1966-67 school year.

In Rural High School and Suburban High School questionnaire directions were administered over an intercom system. In each case the investigator read the directions. The directions followed for the questionnaire administration in Rural and Suburban High Schools are specified in Appendix B.

Urban High School had no intercom system. Directions were developed similar to those used in administering the questionnaire to students in Rural High School and Suburban High School. Teachers in Urban High School assigned to administer the questionnaire were given copies of the directions two days before the actual administration date and encouraged to examine the format for clarity and conciseness. Teachers indicated that the directions were clear and concise and that they understood the need for standardized administration procedures. During and after the questionnaire administration all teachers involved in the study indicated that they administered the questionnaire consistent with the directions. The directions for the questionnaire administration in Urban High School are specified in Appendix C.

Processing the data.--Answer sheets were coded according to student's school, class level, sex, and college plan (whether or not the student intended to pursue a college education). After the questionnaire administration all answer sheets were checked to ascertain that the questionnaire had been completed as specified by the directions. Acceptable answer sheets were assigned a student code number in addition to the student identifying information.

Acceptable answer sheets were processed through an IBM 1230 Optical Scanner designed to generate punched output in a special 1230 punching code. A 1401 program was written to convert the 1230 output to standard card code. Another program converted raw data into a more usable form. Final output consisted of an IBM card for each student, in standard card code, that contained student identification information and student's total raw score in each of the four areas measured by the questionnaire--information, need, concern, and involvement.

V. STATISTICAL ANALYSIS

In determining the appropriate statistical analysis for this study consideration was given to statements by Fisher and Edwards:

> Its (analysis of variance) one claim to attention lies in its convenience. It is convenient in two ways: (1) because it brings to the eyes and to the mind a summary of a mass of statistical data in which the logical content of the whole is readily appreciated. Probably everyone who has used it has found that comparisons which they

> have not previously thought of may obtrude themselves, because there they are, necessary items in the analysis. (2) Apart from aiding the logical process, it is convenient in facilitating and reducing to a common form all the tests of significance which we may want to apply.[12]
>
> That the analysis of variance has proved to be not only a convenient method, as Fisher says, but also a powerful method of analysis for the research worker is demonstrated by the extent to which it has been and is being used in the planning, design, and analysis of research in a variety of disciplines.[13]

The procedure of analysis of variance is an appropriate method to analyze the data that were collected relevant to the hypotheses of this study.

Analysis of variance.--As Cochran and Cox describe the analysis of variance:

> The analysis of variance partitions the sum of squares of the observations into four sums of squares, one attributable to the general mean, one to differences between the estimated effects of the treatments, one to the environmental effects which the experiment is capable of measuring, and lastly one which is the residual or error sum of squares. The sum of squares due to treatments is the quantity ($S_2^2 - S_1^2$) needed for the F-test of the hypothesis that no differences exist between the treatment effects.[14]

The F-test also requires a knowledge of "degrees of freedom" and "sum of squares." Cochran and Cox indicate:

> The "degrees of freedom" associated with any component are the number of independent parameters required to

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[12] Sir R. A. Fisher, quoted in Allen L. Edwards, Experimental Design in Psychological Research (New York: Holt, Rinehart and Winston, 1962), pp. 117-118.

[13] Edwards, Ibid., p. 118.

[14] William G. Cochran and Gertrude M. Cox, Experimental Designs (New York: John Wiley and Sons, 1950), p. 48.

describe that component in the model. For the total sum of squares, the number is the number of observations less one representing the contribution of the mean. The degrees of freedom have two principal uses. First, by subtraction, they give the degrees of freedom for error. This is the divisor needed for the error sum of squares in order to estimate the error variance σ^2. The estimate is called the error mean square. Second, the degrees of freedom for treatments are used in an F-test of the hypothesis that all treatments produced the same effects. The value of F for testing this hypothesis is given as:

$$F = \frac{S_2^{\,2} - S_1^{\,2}}{\underline{k} - 1} \div \frac{S_1^{\,2}}{n_e}$$

The denominator $S_1^{\,2}/ne$ is the error mean square. In the numerator the quantity $(S_2^{\,2} - S_1^{\,2})$ may be shown to be the treatments sum of squares, while $(\underline{k} - 1)$ is the number of degrees of freedom associated with treatments. The numerator is called the treatments mean square.[15]

In discussing the F-test of significance, Edwards states:

> When we find F, by dividing the mean square between groups by the mean square within groups, we have a ratio between two variance estimates. If the null hypothesis is true, then the numerator of the F ratio should exceed the denominator only as a result of random sampling.[16]

Design of the study.--Differences among schools were analyzed using a 2 x 2 x 3 x 4 fixed effects analysis of variance design with four repeated scores per cell. Levels of effects include: two sexes, two college plans, three schools, and four class levels. Each cell contained the means of the scores for the individuals within that cell in the four areas measured by the questionnaire. These mean scores were transformed to T-scores (standardized mean of fifty and standard deviation of ten). The 1 per cent level of significance was used to reject the null hypotheses. To test for significance, error terms were derived according to the procedures specified by Ferguson.[17] To test the significance of the third order interactions the residual (fourth order interaction) was designated as the error term. To test the significance of the second order interactions the error term consisted of the residual plus the nonsignificant third order interactions. To test the significance of the first order interactions the residual plus the nonsignificant third and second order interactions was designated as the error term. To test the significance of the main effects the residual plus all nonsignificant interactions were designated as the error term.

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[15] Ibid., p. 51.

[16] Edwards, op. cit., p. 125.

Differences within schools were analyzed using a 2 x 2 x 4 fixed effects analysis of variance design with four repeated scores per cell. Levels of effects included: two sexes, two college plans, four class levels. Each cell contained the means of the scores for the individuals within that cell in the four areas measured by the questionnaire. These mean scores were transformed to T-scores. The 1 per cent level of significance was used to reject the null hypotheses. The error terms used to test for significance within schools were derived by the same procedures as those used to compute the error terms among schools.

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[17] George A. Ferguson, Statistical Analysis in Psychology and Education (New York: McGraw-Hill Book Company, 1959), pp. 252-253.

CHAPTER IV

RESULTS AND CONCLUSIONS

Results of the statistical analyses and conclusions are presented in this chapter. Results will indicate the tenability of the two basic null hypotheses which are the concern of this study. Results among the Urban High School, the Rural High School, and the Suburban High School students will be analyzed first. Results within each of the three schools will then be independently analyzed. Conclusions will follow the presentation of the results.

I. DIFFERENCES AMONG THE URBAN HIGH SCHOOL, THE RURAL HIGH SCHOOL, AND THE SUBURBAN HIGH SCHOOL

Hypothesis 1.--There are no differences among the selected schools in relation to the four variables of information, need, concern, and involvement considering college plan, sex, and class level of the students.

Findings.--Table IV (as shown on the following page), presents the analysis of variance among the three schools--the Urban High School, the Rural High School, and the Suburban High School. There are twelve significant values of F-ratio. On this basis the null hypothesis was rejected. The twelve significant values are delineated below:

(1) College Plan.--Figure 1, Appendix D, graphically

TABLE IV

ANALYSIS OF VARIANCE AMONG THE URBAN HIGH SCHOOL, THE SUBURBAN HIGH SCHOOL, AND THE RURAL HIGH SCHOOL

Source of Variation	Degrees of Freedom	Mean Squares	F**
Among Groups			
College Plan	1	8978.077	452.74
Sex	1	496.409	25.03
School	2	299.596	15.11
Class	3	394.779	19.91
College Plan by School	2	124.979	5.71
Error term (main effects)	38	19.831	
Error term (first order)	23	21.901	
Error term (second order)	6	13.693	
Subjects Within Groups			
College Plan by Scores	3	310.500	26.75
Sex by Scores	3	336.498	28.99
School by Scores	6	237.026	20.42
Class by Scores	9	107.613	9.27
College Plan by Sex by Scores	3	86.638	7.59
College Plan by School by Scores	6	41.672	3.65
College Plan by Class by Scores	9	100.436	8.80
Error term (first order)	102	11.607	
Error term (second order)	69	11.415	
Error term (third order)	18	10.248	

**All of these main effects and interactions are significant ($P < .01$). A summary of nonsignificant interactions among the three high schools is reported in Tables VIII and IX in Appendix D.

portrays the difference in means between college plan and non-college plan students on average total score. Students planning to attend college have a much higher mean score than those students not planning college attendance.

(2) Sex.--Figure 2, Appendix D, indicates the difference in means between male and female students on average total score. Females have a decidedly higher mean score than males.

(3) School.--Figure 3, Appendix D, projects the difference in means among the Urban High School, the Rural High School, and the Suburban High School on average total score. There is relatively little difference between the Rural High School and the Suburban High School students. The Urban High School students have a decidedly lower mean than the Rural High School and Suburban High School students.

(4) Class level.--Figure 4, Appendix D, illustrates the difference in means among freshman, sophomore, junior, and senior class students on average total score. There are only slight differences in the means among freshman, sophomore, and junior class levels. The senior class mean is distinctly higher than the means of the other three class levels.

(5) College plan by school.--Figure 5, Appendix D, depicts the difference in means between college plan and non-college plan students in the Rural High School, the Suburban High School, and the Urban High School in average

total scores. There are definite differences in means for the college plan students among the three schools. The mean for college plan students in the Rural High School is distinctly higher than the means for the college plan students in both the Suburban High School and the Urban High School. The mean for the college plan students in the Suburban High School, in turn, is definitely higher than the mean for college plan students in the Urban High School. There are also definite differences in means for the non-college plan students among the three high schools. There is little difference between the Rural High School and the Suburban High School means. The mean for non-college plan students in the Urban High School is well below the means for non-college plan students in the Rural High School and the Suburban High School.

(6) College plan by scores.--Figure 6, Appendix D, portrays the difference in means between college plan and non-college plan students in the different score areas. College and non-college plan students show the greatest congruency of means in the need area. In the concern and involvement areas the means are most divergent. In considering the entire interaction, the differentiation between the college plan and non-college plan students is very distinct. The differences among the college plan means are all less than the shortest distance between college plan and non-college plan means. This pattern is also consistent for non-college plan means.

(7) Sex by scores.--Figure 7, Appendix D, illustrates the difference in means between male and female students in the different score areas. Only in the need area is the difference in means between male and female students divergent. Females have a much higher mean than males. Females have a somewhat higher mean than males in the information area.

(8) School by scores.--Figure 8, Appendix D, projects the difference in means among the Urban High School, the Rural High School, and the Suburban High School students in the different score areas. The Urban High School, the Rural High School, and the Suburban High School have similar means in the concern and involvement areas. Means for the Urban High School and the Suburban High School are similar in the need area, but in the information area the Urban High School mean is definitely lower than the Suburban High School mean. In the need area the Rural High School mean is much higher than both the Urban High School and the Suburban High School means. In the information area the Rural High School mean is similar to the Suburban High School mean and well above the Urban High School mean.

(9) Class by scores.--Figure 9, Appendix D, illustrates the difference in means among freshman, sophomore, junior, and senior class students in the different score areas. All four classes have similar means in the concern area. Senior class means are distinctly higher than means of the other class levels in the information, need, and involvement areas.

Freshman class means are lower than the other three class levels in the information and need areas. Sophomore class mean in the involvement area is well below the means of the other three classes. There are relatively few differences in the means between junior and freshman class means in the four score areas.

(10) Class by sex by scores.--Figure 10, Appendix D, depicts the difference in means among college plan and non-college plan male and female students in the different score areas. With the exception of the need area the means of college plan males and females are relatively similar to one another and distinctly different from the means of non-college plan male and female students in the four score areas. This statement is also true for the means of non-college plan males and females. In the need area non-college females have a mean slightly above the mean of college plan males. The means for non-college plan females and college plan males in the need area are distinctly below the mean of college plan females and definitely above the mean of non-college plan males.

(11) College plan by schools by scores.--Figure 11, Appendix D, portrays the difference in means between college plan and non-college plan students among the Urban High School, the Rural High School, and the Suburban High School in the different score areas. College plan means, irrespective of school, are similar to one another and distinctly

different from non-college plan means in the concern and involvement areas. In the need area, with the exception of the college plan Rural High School mean which is higher and the non-college plan Urban High School mean which is lower, college and non-college means are congruent. In the information area the means for college plan Rural High School students and college plan Suburban High School students are similar and higher than the means for the other groups. There is little difference in the information area among the means of college plan Urban High School students, non-college suburban students, and non-college rural students. It may be noted that in the information area the mean for college plan Urban High School students is slightly below the mean for non-college Suburban High School students. The mean for non-college Urban High School students in the information area is extremely below the means for all other groups.

(12) College plan by class by scores.--Figure 12, Appendix D, indicates the differences in means among college plan and non-college plan freshman, sophomore, junior, and senior class students in the different score areas. College plan senior class students have a higher mean in the involvement area than college plan freshman, sophomore, or junior class students, whose means are very similar. All college plan means in the involvement area are distinctly higher than non-college plan means. Within the involvement area the means for non-college plan freshman, sophomore, junior,

and senior class students are all similar. In the concern area there is little difference among the college plan means for the four class levels. The same is true among the non-college plan means in the concern area. Non-college freshman have a mean definitely lower than all other groups in the need area. Above the non-college freshman mean but well below all other means in the need area are the non-college sophomore and junior class means. The non-college senior class mean is nested among the college plan freshman, sophomore, junior, and senior class means in the need area. There are little differences among these five means. In the information area college plan junior and senior class means are similar and distinctly above all other means. College plan freshman and sophomore class means and the non-college senior class mean are grouped together below the college junior and senior class means. The non-college sophomore and junior class means are similar and definitely below the college plan freshman class means and the non-college senior class mean. The non-college freshman class mean is distinctly below all other means in the information area.

II. DIFFERENCES WITHIN THE URBAN HIGH SCHOOL

Hypothesis 2.--There are no differences within schools in relation to the four variables of information, need, concern, and involvement considering college plan, sex, and class level of the students.

Findings.--Table V presents the analysis of variance within the Urban High School.

TABLE V

ANALYSIS OF VARIANCE WITHIN THE URBAN HIGH SCHOOL

Source of Variation	Degrees of Freedom	Squares	F**
Among Groups			
College Plan	1	3514.376	322.54
Sex	1	351.576	32.27
Class	3	241.641	22.18
Error term (main effects)	10	10.896	
Error term (first order)	3	14.474	
Subjects Within Groups			
College Plan by Scores	3	64.628	14.98
Sex by Scores	3	157.065	36.41
Class by Scores	9	63.876	14.81
College Plan by Class by Scores	9	32.436	6.82
Error term (first order)	18	4.313	
Error term (second order)	9	4.755	

**All of these main effects and interactions are significant ($p < .01$). A summary of nonsignificant interactions within Urban High School is reported in Tables X and XI in Appendix D.

There are seven significant values of F-ratio. On this basis the null hypothesis was rejected. The seven significant values are delineated below:

(1) College plan.--Figure 13, Appendix D, projects the difference in means between the Urban High School college plan and non-college plan students on average total score. Students planning to attend college have a much higher mean score than those students not planning college attendance.

(2) Sex.--Figure 14, Appendix D, illustrates the difference in means between the Urban High School male and female students on average total score. Females have a significantly higher mean score than males.

(3) Class level.--Figure 15, Appendix D, depicts the difference in means among the Rural High School freshman, sophomore, junior, and senior class students on average total score. Freshman, sophomore, junior, and senior class means are distinctly different from one another. They are also relatively equidistant from one another. The senior class mean is highest followed by the junior class mean, the sophomore class mean, and the freshman class mean.

(4) College plan by scores.--Figure 16, Appendix D, portrays the difference in means between the Urban High School college plan and non-college plan students in the different score areas. College plan and non-college plan means are distinctly divergent in all four score areas.

(5) Sex by scores.--Figure 17, Appendix D, indicates the difference in means between the Urban High School male and female students in the different score areas. Females have a decidedly higher mean than males in the need area. In all other areas the means between males and females are similar.

(6) Class by scores.--Figure 18, Appendix D, projects the difference in means among the Urban High School freshman, sophomore, junior, and senior class students in the different

score areas. There is relatively little difference among the means in the concern area. In the involvement area the means are distinct from one another and relatively equidistant from one another. The senior class mean is the largest followed by the junior class, freshman class, and sophomore class means. In the need area the means for the classes are equivalent with the exception of the freshman class mean which is definitely lower than the others. In the information area the distance between the means is relatively equal and large. The senior class mean is the largest and is followed by the junior class mean, the sophomore class mean, and the freshman class mean.

(7) College plan by class by scores.--Figure 19, Appendix D, illustrates the difference in means among the Urban High School college plan and non-college plan freshman, sophomore, junior, and senior class students in the different score areas. In the concern and involvement areas college plan means at all class levels are equivalent and definitely higher than non-college plan means. Non-college plan means in the concern area are very similar. In the involvement area the college plan senior class mean is the highest, followed by the college plan junior class mean. The college plan junior class mean is well above the college plan sophomore and freshman class means which are grouped together. Clustered together, well definitely below all college plan class level means, are the information area non-college class

level means. In the need area all college plan class level means are equivalent and definitely higher than all non-college means, which also are equivalent. Only in the information area is there an overlapping relationship between the means of college plan and non-college plan freshman, sophomore, junior, and senior class levels. Non-college seniors have a higher mean than college plan freshman and sophomore class levels. Non-college juniors have a higher mean than college plan sophomore level.

III. DIFFERENCES WITHIN THE RURAL HIGH SCHOOL

Hypothesis 2.--There are no differences within schools in relation to the four variables of information, need, concern, and involvement considering college plan, sex, and class level of the student.

Findings.--Table VI presents the analysis of variance within the Rural High School. There are two significant values of F-ratio. On this basis the null hypothesis was rejected. The two values are delineated below:

(1) College plan.--Figure 20, Appendix D, depicts the difference in means between the Rural High School college plan and non-college plan students on average total score. Students planning to attend college have a definitely higher mean score than those students not planning college attendance.

(2) Class level.--Figure 21, Appendix D, portrays the

difference in means among the Rural High School freshman, sophomore, junior, and senior class students on average total score. There are only slight differences in the means among freshman, sophomore, and junior class levels. The senior class mean is definitely higher than the means of the other three class levels.

TABLE VI

ANALYSIS OF VARIANCE WITHIN THE RURAL HIGH SCHOOL

Source of Variation	Degrees of Freedom	Squares	F**
Among Groups			
College Plan	1	3800.531	159.38
Class Level	3	173.885	7.29
Error term (main effects)	10	23.845	
Error term (first order)	3	34.885	
Subjects Within Groups			
Error term (first order)	30	25.255	
Error term (second order)	9	23.304	

**All of these main effects and interactions are significant ($p<.01$). A summary of nonsignificant interactions within Rural High School is reported in Tables XII and XIII in Appendix D.

IV. DIFFERENCES WITHIN THE SUBURBAN HIGH SCHOOL

Hypothesis 2.--There are no differences within schools in relation to the four variables of information, need, concern, and involvement considering college plan, sex, and class level of the students.

Findings.--Table VII presents the analysis of variance within the Suburban High School. There are three significant values of F-ratio. On this basis the null hypothesis was rejected. The three values are delineated below:

TABLE VII

ANALYSIS OF VARIANCE WITHIN THE SUBURBAN HIGH SCHOOL

Source of Variation	Degrees of Freedom	Mean Squares	F**
Among Groups			
College Plan	1	2665.956	70.31
Error term (main effects)	10	32.228	
Error term (first order)	3	11.268	
Subjects Within Groups			
College Plan by Scores	3	269.172	14.19
Sex by Scores	3	237.676	12.53
Error term (first order)	18	18.966	
Error term (second order)	9	10.167	

**All of these main effects and interactions are significant ($p < .01$). A summary of nonsignificant interactions within Suburban High School is reported in Tables XIV and XV in Appendix D.

(1) College plan.--Figure 22, Appendix D, indicates the difference in means between the Suburban High School college plan and non-college plan students on average total score. Students planning to attend college have a distinctly higher mean score than those students not planning college attendance.

(2) College plan by scores.--Figure 23, Appendix D, projects the difference in means between the Suburban High School college plan and non-college plan students in the

different score areas. College and non-college means are similar for the need area but extremely divergent in the areas of information, concern, and involvement. In all cases the college plan means are distinctly higher than the non-college plan means.

(3) Sex by scores.--Figure 24, Appendix D, illustrates the difference in means between the Suburban High School male and female students in the different score areas. In the need area females have a much higher mean than males. In the concern, involvement, and information areas there are slight differences in male and female means.

V. CONCLUSIONS

On the basis of the results reported in this chapter and within the limitations of the study expressed in Chapter I, the following conclusions seem warranted:

First, students planning to attend college are better informed about college, are more concerned about college, are more involved in college planning, and recognize a greater need for college than students not planning to attend college.

Second, female students recognize a greater need for college and are better informed about college than male students.

Third, the Rural High School students and the Suburban High School students are better informed about college than the Urban High School students.

Fourth, senior class students are better informed about college and more involved in college planning than students at other class levels.

Fifth, sophomore class students are less involved in college planning than are students at other class levels.

Sixth, freshman class students possess the least amount of information about college and the least recognition of the need for college among the four class levels.

Seventh, as the student progresses from the freshman to senior class he recognizes a greater need for college, he becomes more involved in college planning, and he becomes better informed about college.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

I. SUMMARY

Problem.--In our society one of the most important decisions a young person has to make is whether or not to attend college. Research supports the fact that many students make inappropriate college decisions. These students may well represent a loss or misappropriation of human resources. It is reasonable to assume that maximum development of individual potential will result from minimizing faulty college decision-making. At the present time, however, there is a lack of theory and research regarding college decision-making and/or the college choice process.

Purpose.--This study proposed a model for the college choice process and analyzed, in three different secondary schools, four selected variables of the college choice process. The model describes college choice as a process that is characterized by five overlapping developmental stages as the student progresses from little or no awareness of college to resolution of college choice. The schools are urban, rural, and suburban. The four variables are information about college, need to consider college, concern about college planning, and involvement in college planning.

Hypotheses.--The following hypotheses, stated in the null form, were examined:

1. There are no differences among the selected schools in relation to the four variables of information, need, concern, and involvement considering class level, sex, and college plan of the students.

2. There are no differences within the selected schools in relation to the four variables of information, need, concern, and involvement considering class level, sex, and college plan of the students.

Population.--The total student populations of three four-year secondary schools comprised the population of this study. The schools were demographically classified as urban (N = 751), rural (N = 412), and suburban (N = 459).

Procedures.--Within a one-week period in the spring of the school year, all students responded to a sixty-five-item questionnaire. The questionnaire, developed within the context of the theoretical model for the college choice process, measures the four variables of the college choice process (information, need, concern, and involvement). Answer sheets were coded according to student's school, class level, sex, and college plan. An IBM optical scanner scored the answer sheets and transferred the total scores and identifying information to IBM cards.

Design and analysis.--Differences among schools were analyzed using a 2 x 2 x 3 x 4 fixed effects analysis of variance design with four repeated scores per cell. Levels of effects included: two sexes, two college plans, three schools, and four class levels. Each cell contained the means of the scores for the individuals within that cell in the four areas measured by the questionnaire. These mean scores were transformed to T-scores. The 1 per cent level of significance was used to reject the null hypotheses.

Differences within schools were analyzed using a 2 x 2 x 4 fixed effects analysis of variance design with four repeated scores per cell. Levels of effects included: two sexes, two college plans, and four class levels. Cell entries were derived in the same manner as specified in the among schools design. The 1 per cent level of significance was used to reject the null hypotheses.

Results and conclusions.--Analysis of these data indicated rejection of the null hypotheses of no difference among schools and within schools. On the basis of the results and within the limitations of the study, the following conclusions seem warranted:

First, students planning to attend college are better informed about college, are more concerned about college, are more involved in college planning, and recognize a greater need for college than students not planning to attend college.

Second, female students recognize a greater need for college and are better informed about college than male students.

Third, the Rural High School students and the Suburban High School students are better informed about college than the Urban High School students.

Fourth, senior class students are better informed about college and more involved in college planning than students at other class levels.

Fifth, sophomore class students are less involved in college planning than are students at other class levels.

Sixth, freshman class students possess the least amount of information about college and the least recognition of the need for college among the four class levels.

Seventh, as the student progresses from the freshman to senior class he recognizes a greater need for college, he becomes more involved in college planning, and he becomes better informed about college.

II. RECOMMENDATIONS

This study suggests several recommendations:

First, the study should be replicated using random sampling procedures. In this way the findings regarding urban, rural, and suburban schools could be generalized. In any such replication discriminant function multivariate analysis would be an appropriate statistical method.

Second, the relationship between information, need, concern, and involvement and other psychological and sociological factors should be investigated. Factor analysis could be used to determine what factors most contribute to explaining the four score areas.

Third, the relationship between scores in the four score areas and persistence in college should be examined. Finding significant relationships would have important implications for school personnel who design programs to assist students in the college choice process.

Fourth, since the questionnaire has demonstrated a sensitivity to change that takes place as the student progresses through the college choice process, it should be used to assist in the evaluation of college information programs and college counseling. The worth of any such programs and procedures should be verified by objective evaluation.

Fifth, schools should implement programs to involve students in college planning before the senior year. If college choice is indeed a process, and not a point-in-time, then information regarding the value of college and the necessity to prepare for college should be introduced to all students early in their school years. It is important to involve all students in college counseling and/or college information programs since all students will make a decision to attend or to not attend college. By involving all students in college information programs throughout their high school years it may well be that, although students may choose not to attend college, they will retain the value that college (education) is a desirable feature of our society.

Sixth, school personnel should make an effort to involve male students in the college choice process. Male students, who will attend college in greater numbers than female students and who will be the primary source of support for their family, recognize less need for college than female students.

Seventh, special attention should be given to students in urban school environments. Although findings from this study cannot be generalized to populations other than those included in this study, it is suggested that students in the urban population, who have the same amount of need and concern as suburban students, possess far less information about college. As indicated by this study, well organized group information programs do not appear to be effective in providing adequate information about college to urban high school students. Since college choice is a uniquely personal decision, it is recommended that guidance personnel in urban schools consider group programs supplemental to individual counseling procedures that focus on the needs and concerns of the individual student.

Eighth, further research should be conducted within the context of the developmental model of the college choice process defined in this study.

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APPENDIX A

PRE-COLLEGE PLANNING QUESTIONNAIRE

PRE-COLLEGE PLANNING QUESTIONNAIRE

Developed by

MERRON S. SERON

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PRE-COLLEGE PLANNING QUESTIONNAIRE

Please complete the questionnaire to the best of your knowledge, whether or not you plan to attend college.

Part I

Directions: Answer the first 25 questions by placing a mark under column a of the answer sheet if the answer is true or a mark under column b if the answer is false.

1. There is one college that is the best one for any particular student.

2. Every student should try to go to a prestige college.

3. Some high school graduates would be better served by going to a trade, technical or business school instead of to a four year college.

4. The average student who is concerned about college costs should consider colleges in his own community.

5. Business firms and graduate schools select future employees or graduate students chiefly because of the reputation of the college they attended.

6. Only the very definitely better than average students, or students who posess special talents, can hope to get financial assistance to help pay college expenses.

7. Colleges seldom ask the high school about a student's personal qualities such as initiative, honesty, etc.

8. Because of today's selective admissions policies every student should apply to more than one type of college.

9. Going to a four year college is always the best after-high school plan for further education.

10. To enjoy success in later life a person should attend a prestige college.

11. Even though a student is academically superior, the amount of scholarship assistance he may receive will usually depend on his financial need.

12. If a student is going on for further education after high school, family planning on how to pay the costs should be started even when the student is still in grade school.

13. Many students help pay for their own after-high school training through savings from part-time and/or summer employment.

14. Only a few colleges require applicants to take examinations as part of the admissions process.

15. Colleges are interested in a student's high school record of activities such as band, school clubs, and student government.

16. If a student meets the requirements for entering the college of his choice there is nothing more for him to be concerned about in the area of college planning.

17. Relatively few colleges will accept a student just because he is a high school graduate.

18. For any college-bound boy or girl there is a group of colleges which would serve him equally well.

19. If a student does not earn a scholarship by making high grades and high entrance examination scores, there is no other form of financial assistance available to him.

20. Spending a day on a college campus, visiting classes and talking with students is not as reliable a way to judge that college than is talking to its representative

21. A student who has loafed through high school can quickly develop good study habits in college.

22. All students who are hoping to go to college should volunteer to take college entrance tests offered in the sophomore and junior years.

23. A liberal arts program in a junior college is essentially the same as the first two years in a four year liberal arts college.

24. A student should consider only those colleges that he and his family know about.

25. A student who plans to go to college should be willing to study regularly from day to day.

Directions: For questions 26 to 50 place a mark in column a, b, c, or d on your answer sheet corresponding to the best answer to the question. Mark the one best answer. Do NOT mark more than one answer for any question.

26. In choosing a college or junior college the best place to start is to consider:
    a. the cost of going to college
    b. the student's own abilities and interests
    c. the academic standing of the college or junior college
    d. the nearness of the school

27. In choosing a college the final choice can best be made by:
    a. a student's parents
    b. a student's counselor
    c. the student himself
    d. the student's test scores

28. Of the following, the most important step in choosing a college is:
    a. to talk with a school counselor
    b. to visit the college
    c. to inquire about the number of volumes in the library
    d. to talk with the college representative

29. If possible, it is best to visit a college:
    a. on homecoming day
    b. when it is in regular session
    c. during a college vacation period
    d. during the summer

30. When you are beginning to inform yourself about the differences among colleges the best single source of information is:
    a. your parents
    b. your friends
    c. the catalogs of the colleges
    d. the yearbook of the colleges

31. If you have questions about your abilities and interests and wish to spend some time finding out about them, the best person to talk to is usually:
    a. your best friend
    b. one of your parents
    c. your teacher
    d. your counselor

32. If college admissions offices could have only one item of information about a student they would generally prefer to have:
    a. the student's academic record in high school
    b. the student's scores on college entrance examinations
    c. three recommendations from high school teachers
    d. a recommendation from the school counselor

33. The best way to find out the entrance requirements for a certain college is to:
    a. ask your counselor
    b. ask a fellow student
    c. ask a graduate of that college
    d. look it up in the catalog of that college

34. Colleges use entrance examinations to:
    a. make it harder to enter their college
    b. compare high school seniors' achievement with that of other seniors
    c. to be reasonably certain that students who are accepted will be able to do the college work expected of them
    d. check up on high schools

35. If an average student whose college budget is limited wishes to go away from home to attend college he should give first consideration to which of the following:
    a. public institutions in his own state
    b. colleges with large scholarship funds
    c. well-known private colleges
    d. availability of government loans

36. A student will develop good study habits:
    a. if someone tells him how to study
    b. if he is naturally brilliant
    c. if he puts into practice the suggestions of others
    d. if he does not watch television too much

37. A major sequence for high school graduation consists of:
    a. two years of study of the same subject
    b. three years of study of the same subject
    c. enough work in a given subject to make a good score on college entrance examinations
    d. four years of study of the same subject

38. Cost for room, board and tuition, and all other expenses for one college year are most likely to be closest to:
    a. $1,400
    b. $1,000
    c. $3,500
    d. $1,900

39. A liberal arts college is:
    a. a college offering the type of general education which is useful to a person in a number of vocational fields
    b. a college offering training for a specific profession
    c. any school having the word college as part of its legal name
    d. a college offering basic training in the area of art

40. A co-educational college is one which enrolls:
    a. boys only
    b. girls only
    c. both boys and girls
    d. none of the above is the right answer

41. When a college catalog uses the word "tuition" it means:
    a. the charge the college makes for attending classes
    b. the total cost of attending college for one semester
    c. the amount of money refunded if a student leaves school
    d. none of the above

42. The word "curriculum" means:
    a. those courses in school which a student can take to make up for a failed course
    b. those courses which a student is required to take in order to graduate
    c. all of the subjects in which a school offers instruction
    d. none of the above

43. A college is described as "public" when:
    a. it accepts any member of the public who wishes to attend
    b. it is supported by money from taxpayers and controlled by some unit of government
    c. its faculty members make many public speeches
    d. its buildings are always open to inspection

44. When a college is described as being "church related" this means that:
    a. only students who are members of that particular church will be accepted
    b. the college policies are governed by the national board of directors of a particular church
    c. all students must attend the religious service of their choice regularly
    d. the college was founded by a church group and may receive part of its support from them

45. An institution of higher learning which is divided into several "schools" or "colleges" and is controlled by one administrative unit is called:
    a. a professional school
    b. a university
    c. a liberal arts college
    d. a graduate school

46. When a man is said to have a Bachelor's Degree this means that:
    a. he graduated from an accredited two-year college
    b. he has completed more than four years of work in an accredited college
    c. he graduated from an accredited four-year college
    d. none of the above

47. A junior college is a two-year college where:
    a. a student is limited to preparing for a particular kind of job
    b. all the students are under 21 years of age
    c. a student may choose either a liberal arts or vocational course
    d. a place to go if you can not get in a four year college

48. A technical school differs from a college or junior college in that:
    a. its program of studies is easier to master
    b. it offers semi-professional programs designed to teach the skills needed for specific technical jobs
    c. it guarantees to find a job for each graduate
    d. it offers technical training that allows a graduate to master any technical occupation

49. A private college is one which:
    a. will accept only those students whose families belong to certain organizations
    b. only teaches certain subjects
    c. feels that what it teaches is no ones business but its own
    d. is supported by money from tuition and endowment

50. A student's academic success in any accredited college at which he is accepted depends on:
    a. his own motivation and ability
    b. the difficulty of the work at the college
    c. whether he makes a good impression on the teachers
    d. the area he decides to major in

Part II

Directions: There are no right or wrong answers to this part of the questionnaire. Read each group of 5 statements and make a mark in the column of the answer sheet of the one statement that is most typical of you. Make only one mark on the answer sheet for each question.

51. a. I definitely meet the requirements of the college of my choice.
b. I am not sure what college requirements I do meet.
c. I meet the entrance requirements of a number of colleges I am considering
d. I have not as yet looked into college requirements.
e. I am not sure of the entrance requirements for the colleges I am thinking o

52. a. Parents should not be involved in their student's college planning at the freshman year.
b. It is desireable that both parents and students be involved in college planning at the freshman year.
c. It does not matter if parents are involved in their student's college planning at the freshman year.
d. It is necessary that both parents and students be involved in college planning at the freshman year.
e. It is not too important that parents be involved in their student's college planning at the freshman year.

53. a. I haven't given much thought to my ability to do college work.
b. I give some thought to my ability to do college work.
c. I never have thought about my ability to do college work.
d. I always wonder about my ability to do college work.
e. I often wonder about my ability to do college work.

54. a. I have looked at college information in the library or guidance office.
b. I have not done anything yet to know colleges.
c. I have talked with friends about certain colleges.
d. I have sent for and studied college catalogs.
e. I have not done anything to know colleges, but plan to.

55. a. The freshman year is too early to begin saving for college.
b. College-bound freshmen students should give some consideration to financing a college education.
c. The college-bound student must think of financing college during his freshman year in high school.
d. It is not important that college-bound freshmen students give consideration to financing a college education.
e. It does not matter, one way or the other, that freshmen students think about financing a college education.

56. a. I often wonder how I will finance college.
b. I hardly ever think about financing my college education.
c. I always wonder how I will finance college.
d. I give some thought to how I will finance college.
e. I never have thought about financing a college education.

57. a. I am saving or my family is saving but I am really not sure of the financial arrangements for my college education.
    b. At the present time no arrangements have been made, that I know of, to finance my college education.
    c. My family has some plan to finance my college education, but I am not sure what it is.
    d. My family and I have savings, bonds, or other funds all set aside for my college education.
    e. I am not sure that any arrangements have been made to finance my college education.

58. a. It does not matter, one way or the other, that the college-bound student start planning his four year course schedule at the freshman year.
    b. The college-bound student must start planning his four year high school course schedule at the freshman year.
    c. It is not important that college-bound freshmen give much thought to planning their four year high school course schedule.
    d. The freshman year is too early for the college-bound student to start planning his four year high school course schedule.
    e. College-bound students should give some consideration to planning a four year high school course schedule at the freshman year.

59. a. My family is not very concerned about my college plans.
    b. My family is not at all concerned about my college plans.
    c. My family is interested in my college plans.
    d. My family does not care, one way or the other, about my college plans.
    e. My family is greatly concerned about my college plans.

60. a. Freshmen should definitely be concerned whether or not they have college ability.
    b. It does not matter that freshmen consider if they have college ability.
    c. The freshman year is too early to be concerned about college ability.
    d. Freshmen should give some consideration as to their college ability.
    e. It is not important that freshmen give much thought to their college ability.

61. a. I never wonder if I am taking the right courses for college.
    b. I always wonder if I am taking the right courses for college.
    c. I sometimes wonder if I am taking the right courses for college.
    d. I hardly ever wonder if I am taking the right courses for college.
    e. I often wonder if I am taking the right courses for college.

62. a. I am thinking of many colleges that may possibly be appropriate for me.
    b. I have selected a couple of colleges that seem appropriate for me.
    c. I have applied to a college and know it is appropriate for me.
    d. I have not considered what type college would be appropriate for me.
    e. I have selected a college that seems to be appropriate for me.

63. a. It does not matter whether you start thinking of college at the freshman year or not.
    b. It is not too important to start thinking of college at the freshman year.
    c. Students should be thinking of college at the freshman year.
    d. You should give some thought to college at the freshman year.
    e. The freshman year is too early to start thinking of college.

64. a. I always wonder what type of college would be appropriate for me.
    b. I often wonder what type of college would be appropriate for me.
    c. I hardly ever wonder what type of college would be appropriate for me.
    d. I never wonder what type of college would be appropriate for me.
    e. I sometimes wonder what type of college would be appropriate for me.

65. a. My parents are greatly involved in helping me select a college.
    b. My parents are not involved in helping me select a college.
    c. My parents are somewhat involved in helping me select a college.
    d. My parents chose my college for me.
    e. My parents are involved in helping me select a college.

MAKE SURE YOU HAVE ONE ANSWER MARKED ON YOUR ANSWER SHEET FOR EVERY QUESTION FROM 51 TO 66.

IF YOU DO NOT HAVE ONE ANSWER FOR EACH QUESTION FROM 51 TO 66 YOUR ANSWER SHEET WILL NOT BE ABLE TO BE SCORED.

APPENDIX B

DIRECTIONS FOR ADMINISTRATION OF QUESTIONNAIRE IN THE SUBURBAN HIGH SCHOOL AND THE RURAL HIGH SCHOOL

DIRECTIONS FOR ADMINISTRATION OF QUESTIONNAIRE IN THE SUBURBAN HIGH SCHOOL AND THE RURAL HIGH SCHOOL

To Teachers: All teachers have a packet of Questionnaire booklets. IBM answer sheets are inside the cover of each booklet.

At the beginning of the period, after the students have been seated, say:

"Make sure you all have a number 2 or number 3 pencil. I am going to pass out the questionnaires that will be used in today's testing program. When you receive your booklet please take out the answer sheet inside the cover, close your booklet, and wait for instructions from the school intercom system."

Instructions that will come over the intercom system:

Today you are participants in an educational research project sponsored jointly by The United States Office of Education and Northwestern University. All students in the school will participate by answering a questionnaire dealing with educational planning.

It is important that you use a number 2 or number 3 pencil when marking the IBM sheet. Make sure your marks are heavy and black. Do not make any marks on the questionnaire booklets and do not make any unnecessary marks on the IBM answer sheets.

We are now ready to begin administration of the questionnaire. It is important that everyone follow these introductory directions before starting work on the questionnaire. You have all received a questionnaire booklet. Inside the front cover is an IBM answer sheet. At this time will you please take out the answer sheet and turn it so that the blank space for your name is in the upper left hand corner.

Print your name, last name first, in the upper left hand corner box in the space provided. Do not fill in any of the other boxes. You have now printed your name in the upper left hand corner box. Now please look at the boxes numbered 1 to 9 under the arrow labeled --- Student Number around the top middle of the answer sheet. You will fill in information in the top four boxes. It is especially important that these boxes be filled in correctly.

In box number one under the arrow place a 1. This number will identify your school. After you place a 1 in the box, look over to the right of the box and fill in the space between the two dotted lines labeled 1.

In box number two under the arrow place a 1 if you are a senior, a 2 if you are a junior, a 3 if you are a sophomore, a 4 if you are a freshman, a 5 if you are in eighth grade, and a 6 if you are in seventh grade. Then go out to the right side of the box and fill in the space between the dotted lines that is the same number as the number in box two. (Repeat these directions.)

In box number three under the arrow place a 1 if you are a boy or a 2 if you are a girl. Then go out to the right and fill in the proper space. (Repeat these directions.)

In box number four under the arrow place a 1 if you feel that you will be attending college after high school. Place a 2 in the box if you feel that you will not be attending college after high school. Go out to the right and fill in the proper space. (Repeat these directions.)

All right, let's review for a second. Under student number you find boxes numbered 1 to 9. You have filled out the top four boxes. In box 1 you have filled in a 1. Out to the right of the box you have filled in the dotted lines for space 1.

In box 2 you have filled in your class level. Sr's 1, Jr's 2, Soph's 3, Frosh 4, eighth graders 5, and seventh graders, 6.

In box three you have placed a 1 if you are a boy or a 2 if you are a girl.

In box four you have placed a 1 if you think you will attend college after high or a 2 if you think you will not attend college after high school.

Out to the right of the four numbers in the boxes you have filled in the spaces between the dotted lines that match the numbers you placed in the boxes.

All right, we will now turn to the questionnaire.

At this time please turn to the last page of the questionnaire, page 8. Below question 65 there are two sentences in heavy, bold type. Will you please take your pencil and change the number 66 in each sentence to 65. (Repeat.)

All right, we will now begin work on the questionnaire. Mark only one answer for each question. Work as rapidly as you can. Do not spend time on any one question. Make your marks on the answer sheet heavy and black. If you erase an answer make sure that you have erased the mark completely. If your pencil breaks please raise your hand and the teacher will give you another pencil. Remember, do not mark the questionnaire booklet and do not make stray marks on the answer sheet. Work as rapidly as you can. All right, begin.

TO TEACHERS:

If a student has a question just say: "Do the best you can."

At the end of 10 minutes students will be told that 10 minutes is up and to work rapidly. This will be repeated periodically.

Most students should finish in about 25-40 minutes.

Students should keep their questionnaires and answer sheets till either you observe all have finished or the directions come from the intercom. Collect booklets and answer sheets separately and send with a runner to the office. Thank you.

APPENDIX C

DIRECTIONS FOR ADMINISTRATION OF QUESTIONNAIRE IN THE URBAN HIGH SCHOOL

DIRECTIONS FOR ADMINISTRATION OF QUESTIONNAIRE IN URBAN HIGH SCHOOL

TO TEACHERS: All teachers have a packet of questionnaire booklets. Each packet is labeled according to class taught and includes a few extra booklets for each class. IBM answer sheets are inside the cover of each booklet. The packet of pencils includes a few more than you have in your largest class.

When students are seated and in order say:

"Today you are participants in an educational research project sponsored by The United States Office of Education and Northwestern University. All students in grades 9 to 12 will participate by answering a questionnaire dealing with educational planning.

"I am now going to pass out booklets and pencils. These materials will be collected when EVERYONE has finished the questionnaire. Do not open the booklets until told to open them."

PASS OUT THE QUESTIONNAIRE BOOKLETS AND PENCILS. When all have them say:

"We are now ready to begin. It is important that everyone follow my directions. You all have a questionnaire booklet. Inside the front cover is an IBM answer sheet. At this time will you please take out the answer sheet and turn it so that the blank space for your name is in the upper left hand corner. (Repeat underlined words.)

"Print your name, last name first, in the upper left hand corner box in the space provided. Do not fill in any of the other boxes. (Repeat underlined words.)

"All right, you have printed your name, last name first, in the upper left hand corner box. Now look at the boxes numbered 1 to 9 under the red arrow around the top middle of the answer sheet. You will fill in information in the top four boxes. It is important that these boxes be filled in correctly.

"Find the red arrow at the top middle of the answer sheet. In box number 1 under the red arrow place a 3. This is the number of your school. After you place a 3 in the box, look over to the right of the box and fill in the space between the two dotted lines labeled 3. Make your marks heavy and black. (Repeat underlined words.)

"In box number two under the red arrow place a 1 if you are a senior, a 2 if you are a junior, a 3 if you are a sophomore, or a 4 if you are a freshman. Then go out to the right side of the box and fill in the proper space between the dotted lines. (Repeat underlined words.)

"In box number three under the red arrow place a 1 if you are a boy or a 2 if you are a girl. Then go out to the right and fill in the proper space. (Repeat.)

"In box number four under the red arrow place a 1 if you feel that you WILL be attending college after high school. Place a 2 in the box if you feel that you WILL NOT be attending college after high school. Fill in the proper space to the right of the box. (Repeat.)

"All right, let's review for a minute. Under the red arrow you found boxes numbered 1 to 9. You have filled out the top four boxes. In box 1 you have filled in a 3. Out to the right of the box you have filled in the dotted lines for space 3.

"In box 2 you have filled in a 1 if you are a senior, a 2 if you are a junior, a 3 if you are a sophomore, and a 4 if you are a freshman. You have filled out the proper space to the right of the box.

"In box three you have placed a 1 if you are a boy or a 2 if you are a girl.

"In box four you have placed a 1 if you think you WILL attend college after high school or a 2 if you feel you WILL NOT attend college after high school.

"All right, at this time please turn to the last page of the blue questionnaire booklet, page 8. Below question 65 there are two sentences in heavy, bold type. Will you take your pencil and change the number 66 in each sentence to 65. (Repeat.)

"We are now ready to begin work on the questionnaire. Mark only one answer for each question. Make sure you mark only between the dotted lines and that your marks are heavy and black. If you erase an answer make sure that you have erased the mark completely. If your pencil breaks raise your hand and I will give you another pencil.

"You are not expected to know all the questions and answers, so work as rapidly as you can and do not spend time on any one question. Remember, do not mark the blue questionnaire booklet and do not make stray marks on the answer sheets. Work as rapidly as you can. All right, begin work."

TO TEACHERS:

If a student asks a question, just say: "JUST DO THE BEST JOB YOU CAN."

At the end of every 10 minutes say: "WORK AS RAPIDLY AS YOU CAN. DON'T SPEND TIME ON ANY ONE QUESTION."

When ALL students have finished say: "I WILL NOW COLLECT THE QUESTIONNAIRE MATERIALS. AT THIS TIME WILL YOU PLEASE HAND IN YOUR ANSWER SHEETS."

After answer sheets have been collected say: "NOW HAND IN YOUR BLUE QUESTIONNAIRE BOOKLETS."

After questionnaire booklets have been collected say: "NOW HAND IN YOUR PENCILS."

(It is important that you collect all pencils since you will need them for other classes. They are not special pencils, just No. 2 lead pencils. If you run out by the end of the day students could use a regular No. 2 or No. 3 pencil.)

When all materials have been collected it would be appreciated if you would send the booklets and answer sheets to room 123. Most students should finish in 25-40 minutes.

Thank you very much for your assistance. A report will be sent to the school during the summer. These results should be available to interested staff when school resumes in the fall.

PLEASE READ THE DIRECTIONS AS THEY ARE ABOVE. THEY ARE STANDARDIZED DIRECTIONS.

APPENDIX D

SUPPLEMENTARY TABLES AND FIGURES

TABLE VIII

SUMMARY OF AMONG GROUP ANALYSIS OF VARIANCE INTERACTIONS AMONG THE URBAN HIGH SCHOOL, THE RURAL HIGH SCHOOL, AND THE SUBURBAN HIGH SCHOOL[1]

Source of Variation	Degrees of Freedom	Mean Squares
College Plan by Sex	1	0.025
College Plan by School	2	124.979
College Plan by Class	3	10.313
Sex by School	2	7.810
Sex by Class	3	22.445
School by Class	6	22.655
College Plan by Sex by School	2	2.868
College Plan by Sex by Class	3	31.901
College Plan by School by Class	6	8.094
Sex by School by Class	6	45.259
College Plan by Sex by School by Class	6	13.693

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[1] Nonsignificant mean squares were pooled and are summarized in Table IV.

TABLE IX

SUMMARY OF SUBJECTS WITHIN GROUPS ANALYSIS OF VARIANCE INTERACTIONS AMONG THE URBAN HIGH SCHOOL, THE RURAL HIGH SCHOOL AND THE SUBURBAN HIGH SCHOOL[1]

Source of Variation	Degrees of Freedom	Mean Squares
College Plan by Scores	3	310.500
Sex by Scores	3	336.498
School by Scores	6	237.026
Class by Scores	9	107.613
College Plan by Sex by Scores	3	86.638
College Plan by School by Scores	6	41.672
College Plan by Class by Scores	9	100.436
Sex by School by Scores	6	10.521
Sex by Class by Scores	9	6.631
School by Class by Scores	18	15.193
College Plan by Sex by Scores	6	3.206
College Plan by Sex by Class by Scores	9	19.215
College Plan by School by Class by Scores	18	6.143
Sex by School by Class by Scores	18	17.192
College Plan by Sex by School by Class by Scores	18	10.248

[1] Nonsignificant mean squares were pooled and are summarized in Table IV.

TABLE X

SUMMARY OF AMONG GROUP ANALYSIS OF VARIANCE INTERACTIONS WITHIN THE URBAN HIGH SCHOOL[1]

Source of Variation	Degrees of Freedom	Mean Squares
College Plan by Sex	1	0.906
College Plan by Class	3	16.139
Sex by Class	3	5.405
College Plan by Sex by Class	3	14.474

[1] Nonsignificant mean squares were pooled and are summarized in Table V.

TABLE XI

SUMMARY OF SUBJECTS WITHIN GROUPS ANALYSIS OF VARIANCE INTERACTIONS WITHIN THE URBAN HIGH SCHOOL[1]

Source of Variation	Degrees of Freedom	Mean Squares
College Plan by Scores	3	64.628
Sex by Scores	3	157.065
Class by Scores	9	63.876
College Plan by Sex by Scores	3	30.215
College Plan by Class by Scores	9	32.436
Sex by Class by Scores	9	3.872
College Plan by Sex by Class by Scores	9	4.755

[1] Nonsignificant mean squares were pooled and are summarized in Table V.

TABLE XII

SUMMARY OF AMONG GROUP ANALYSIS OF VARIANCE INTERACTIONS WITHIN THE RURAL HIGH SCHOOL[1]

Source of Variation	Degrees of Freedom	Mean Squares
College Plan by Sex	1	3.451
College Plan by Class	3	1.048
Sex by Class	3	42.401
College Plan by Sex by Class	3	34.885

[1] Nonsignificant mean squares were pooled and are summarized in Table VI.

TABLE XIII

SUMMARY OF SUBJECTS WITHIN GROUPS ANALYSIS OF VARIANCE INTERACTIONS WITHIN THE RURAL HIGH SCHOOL[1]

Source of Variation	Degrees of Freedom	Mean Squares
College Plan by Scores	3	56.243
Sex by Scores	3	66.908
Class by Scores	9	61.925
College Plan by Sex by Scores	3	15.819
College Plan by Class by Scores	9	40.768
Sex by Class by Scores	9	14.839
College Plan by Sex by Class by Scores	9	23.304

[1] Nonsignificant mean squares were pooled and are summarized in Table VI.

TABLE XIV

SUMMARY OF AMONG GROUP ANALYSIS OF VARIANCE INTERACTIONS WITHIN THE SUBURBAN HIGH SCHOOL[1]

Source of Variation	Degrees of Freedom	Mean Squares
College Plan by Sex	1	0.036
College Plan by Class	3	15.889
Sex by Class	3	80.259
College Plan by Sex by Class	3	11.268

[1] Nonsignificant mean squares were pooled and are summarized in Table VII.

TABLE XV

SUMMARY OF SUBJECTS WITHIN GROUPS ANALYSIS OF VARIANCE INTERACTIONS WITHIN THE SUBURBAN HIGH SCHOOL[1]

Source of Variation	Degrees of Freedom	Mean Squares
College Plan by Scores	3	269.172
Sex by Scores	3	237.676
Class by Scores	9	42.335
College Plan by Sex by Scores	3	67.591
College Plan by Class by Scores	9	46.636
Sex by Class by Scores	9	27.764
College Plan by Sex by Class by Scores	9	10.167

[1] Nonsignificant mean squares were pooled and are summarized in Table VII.

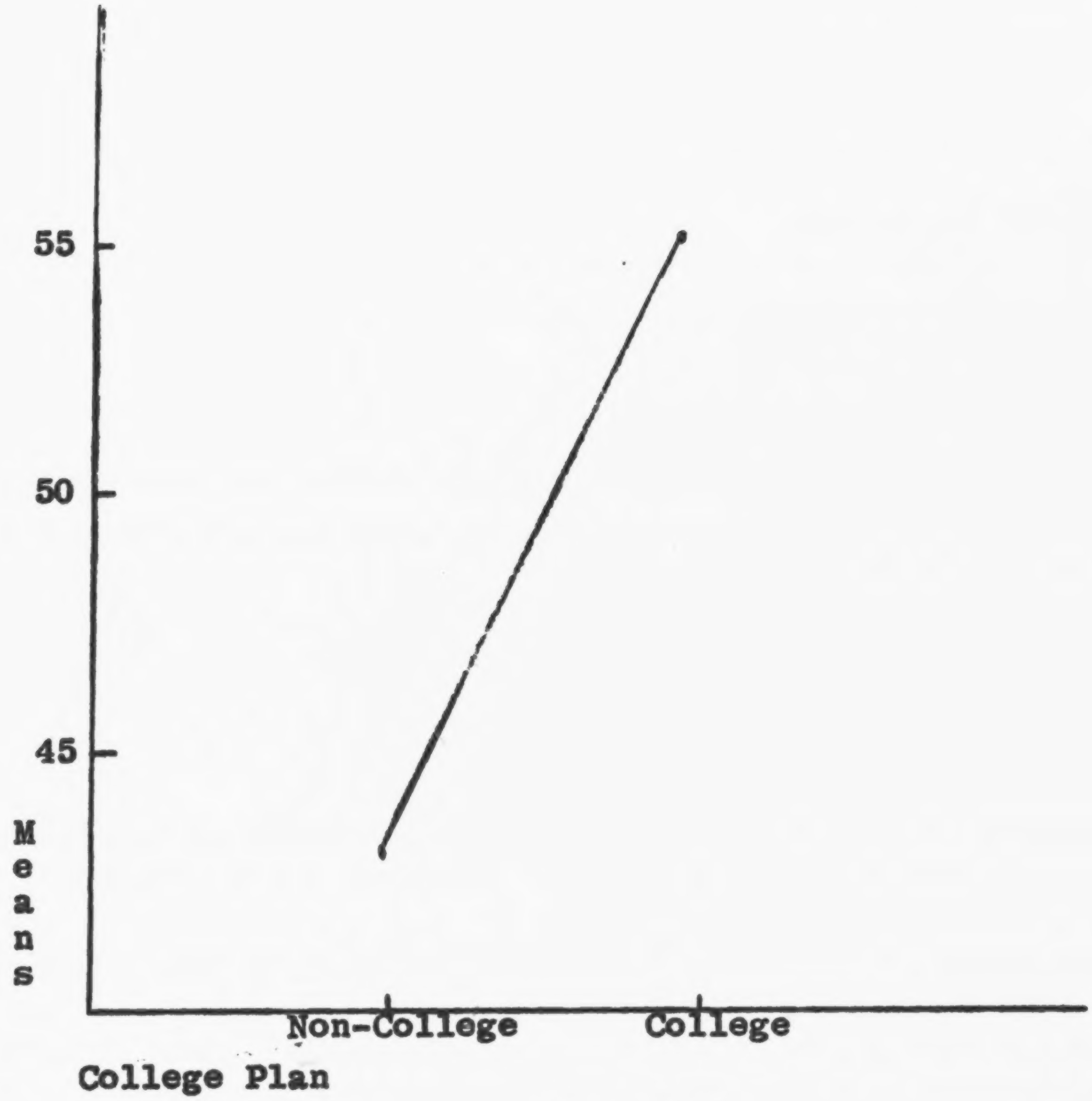

FIGURE 1

DIFFERENCE IN MEANS BETWEEN COLLEGE PLAN AND NON-COLLEGE PLAN STUDENTS ON AVERAGE TOTAL SCORE

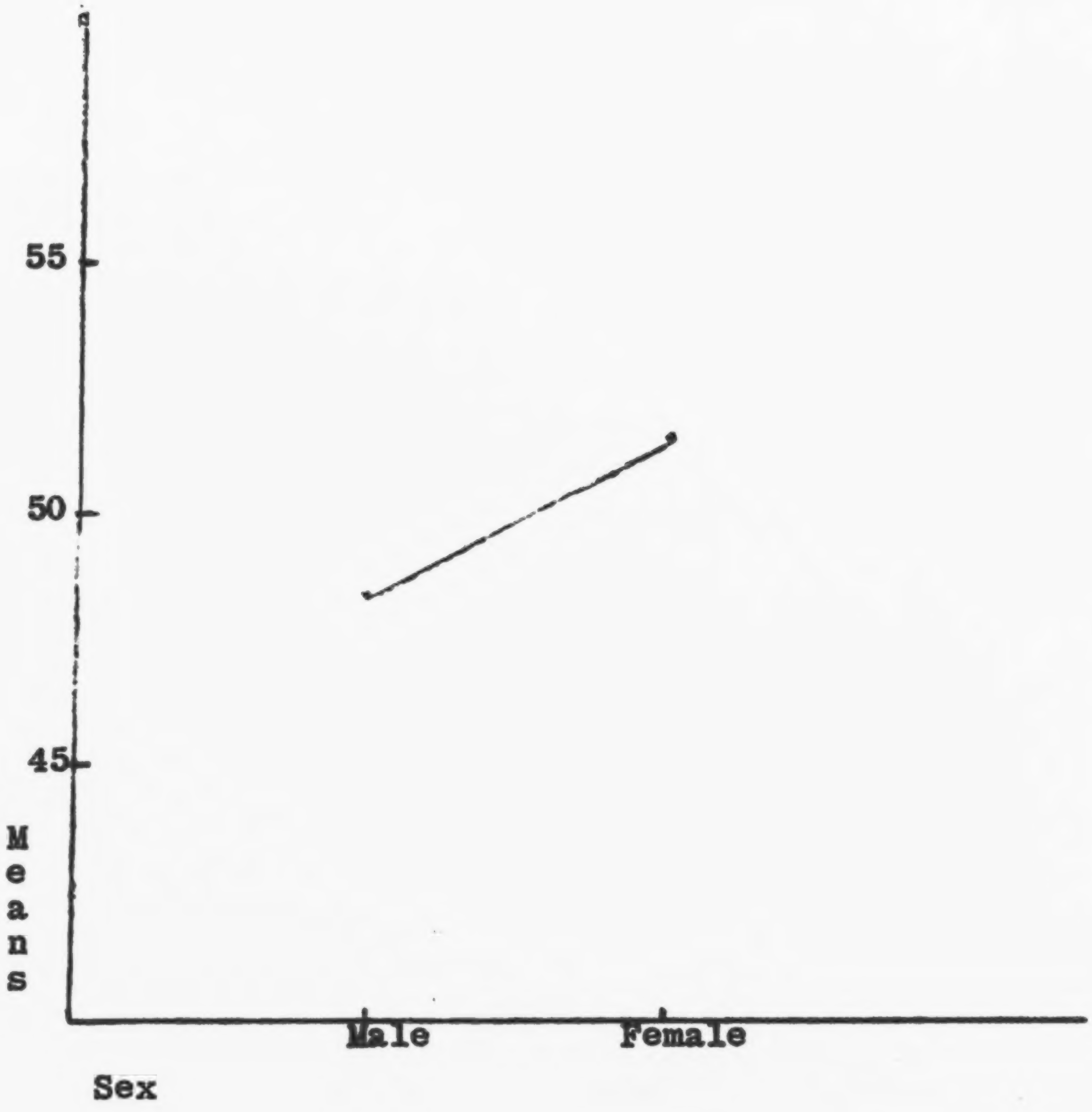

FIGURE 2

DIFFERENCE IN MEANS BETWEEN MALE AND FEMALE STUDENTS ON AVERAGE TOTAL SCORE

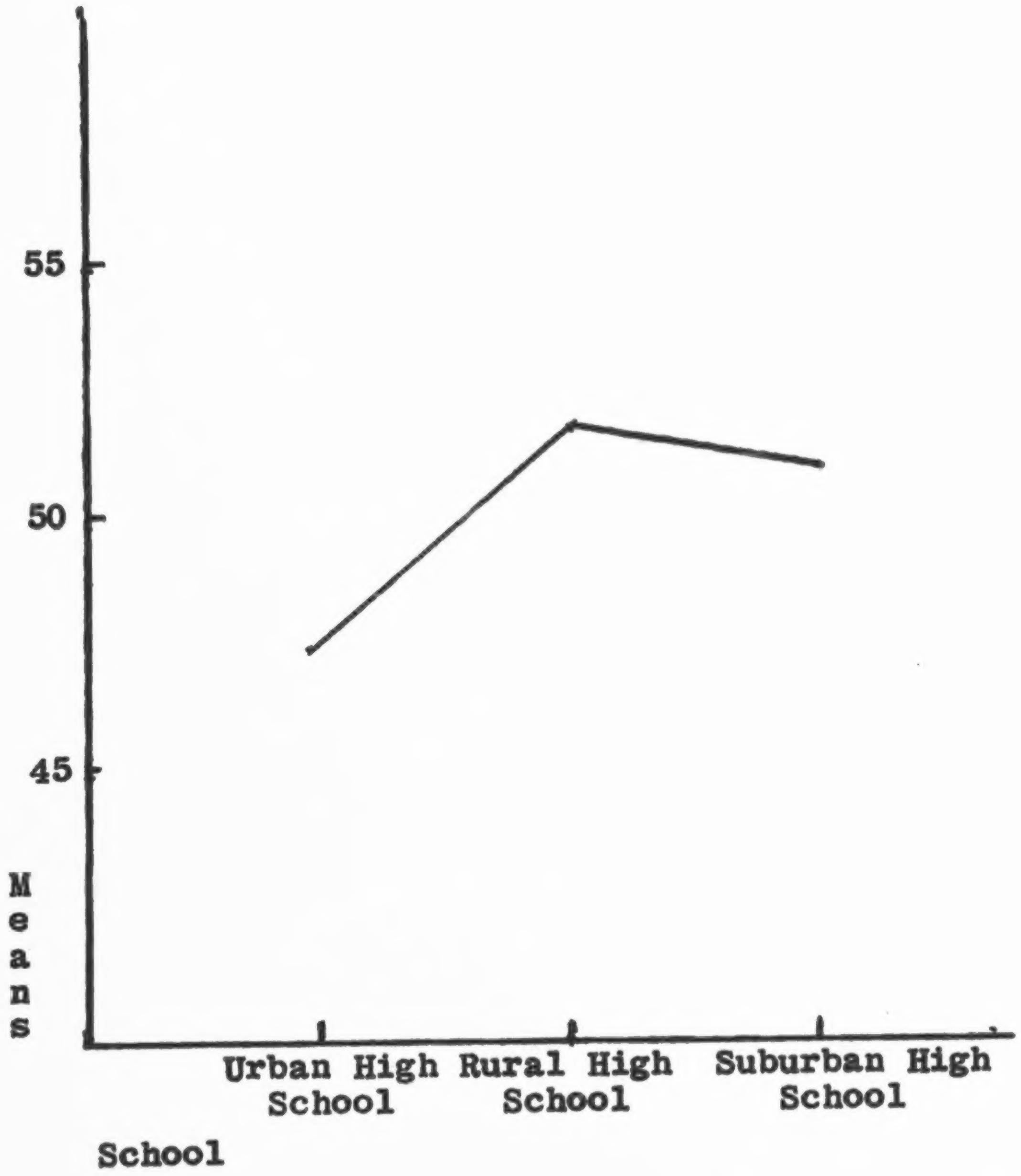

FIGURE 3

DIFFERENCE IN MEANS AMONG THE URBAN HIGH SCHOOL, THE RURAL HIGH SCHOOL, AND THE SUBURBAN HIGH SCHOOL STUDENTS ON AVERAGE TOTAL SCORE

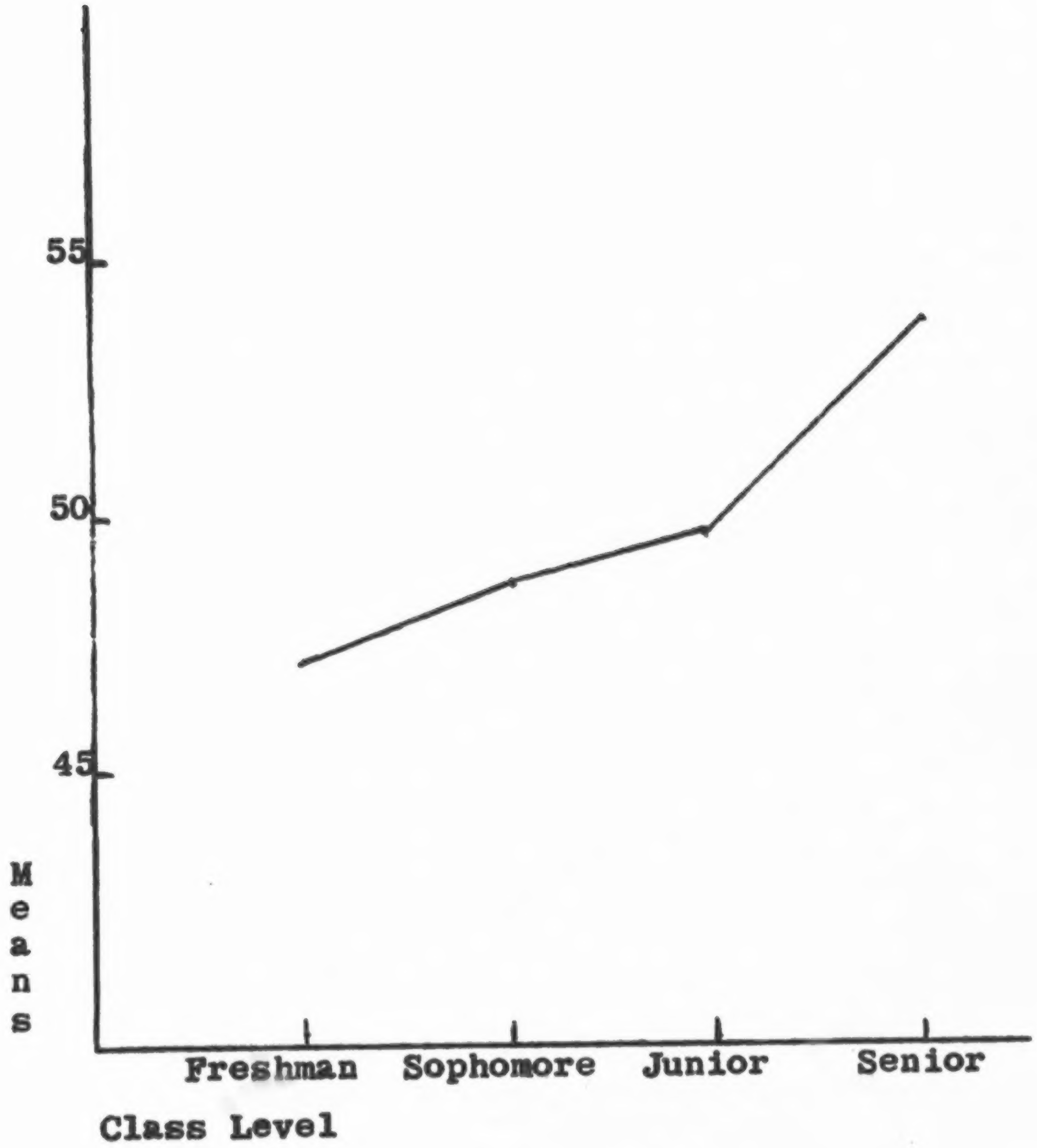

FIGURE 4

DIFFERENCE IN MEANS AMONG FRESHMAN, SOPHOMORE, JUNIOR, AND SENIOR CLASS STUDENTS ON AVERAGE TOTAL SCORE

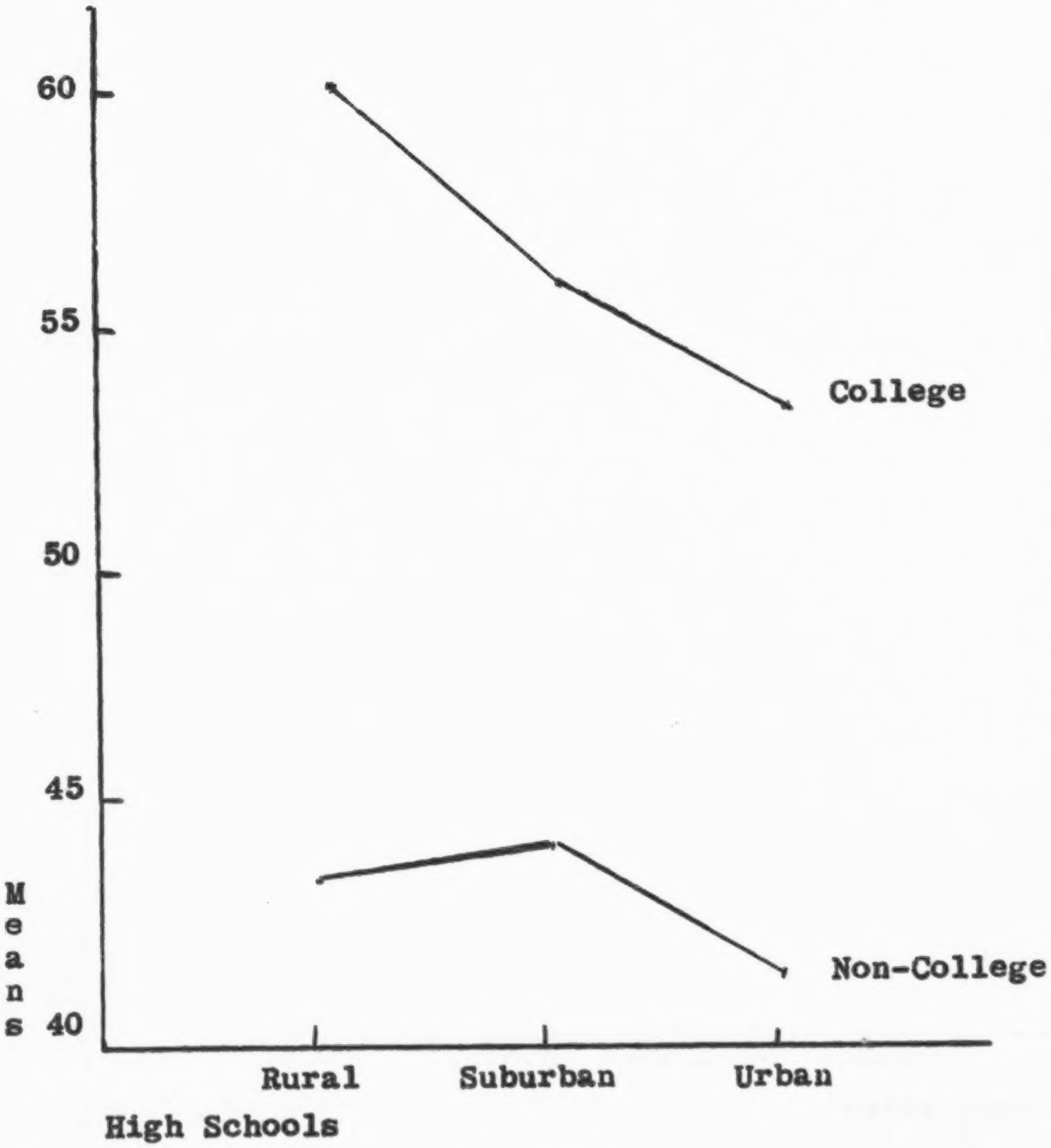

FIGURE 5

DIFFERENCE IN MEANS BETWEEN COLLEGE PLAN AND NON-COLLEGE PLAN STUDENTS IN THE RURAL HIGH SCHOOL, THE SUBURBAN HIGH SCHOOL, AND THE URBAN HIGH SCHOOL ON AVERAGE TOTAL SCORES

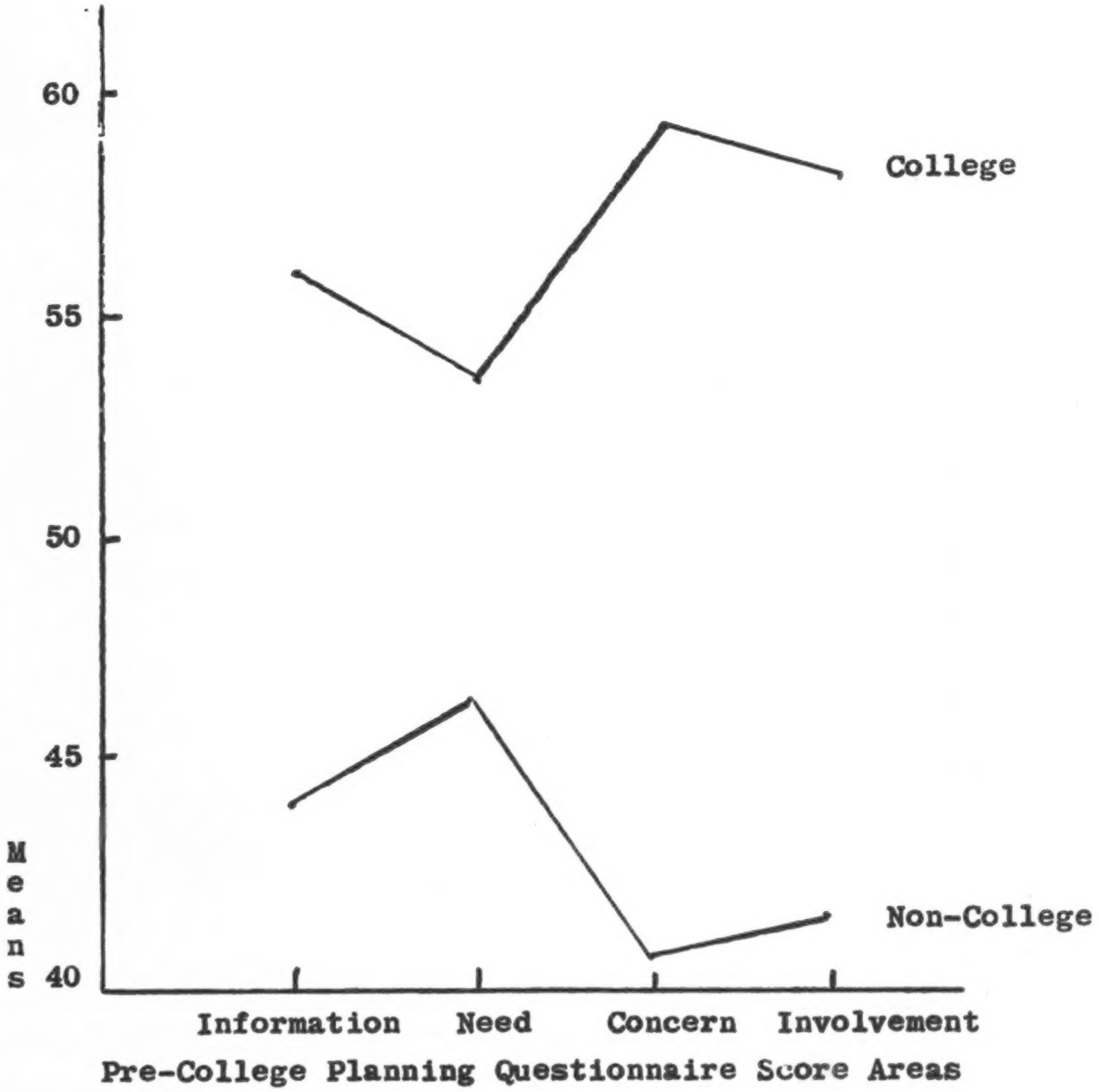

FIGURE 6

DIFFERENCE IN MEANS BETWEEN COLLEGE PLAN AND NON-COLLEGE PLAN STUDENTS IN THE DIFFERENT SCORE AREAS

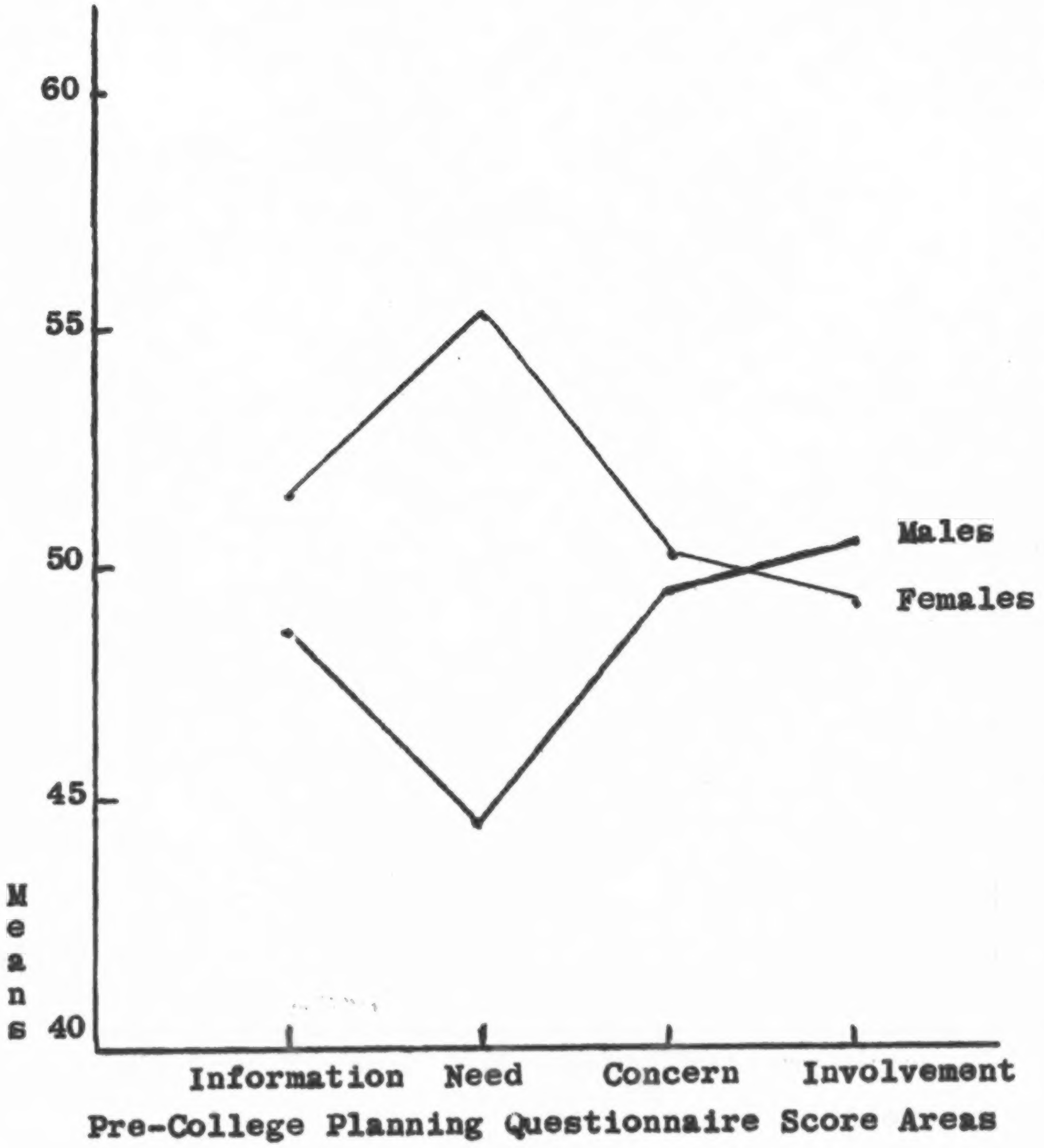

FIGURE 7

DIFFERENCE IN MEANS BETWEEN MALE AND FEMALE STUDENTS IN THE DIFFERENT SCORE AREAS

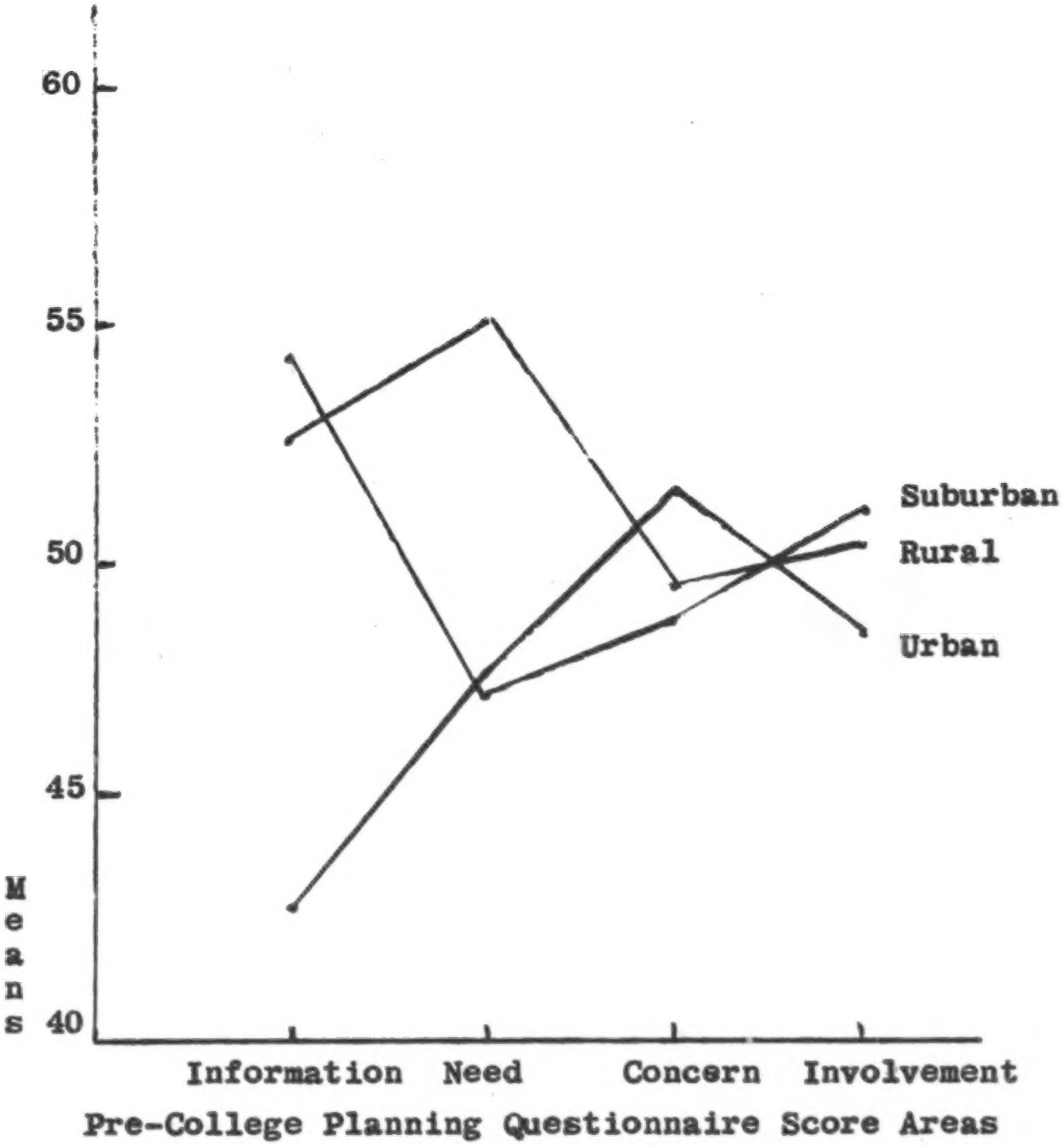

FIGURE 8

DIFFERENCE IN MEANS AMONG THE URBAN HIGH SCHOOL, THE RURAL HIGH SCHOOL, AND THE SUBURBAN HIGH SCHOOL STUDENTS IN THE DIFFERENT SCORE AREAS

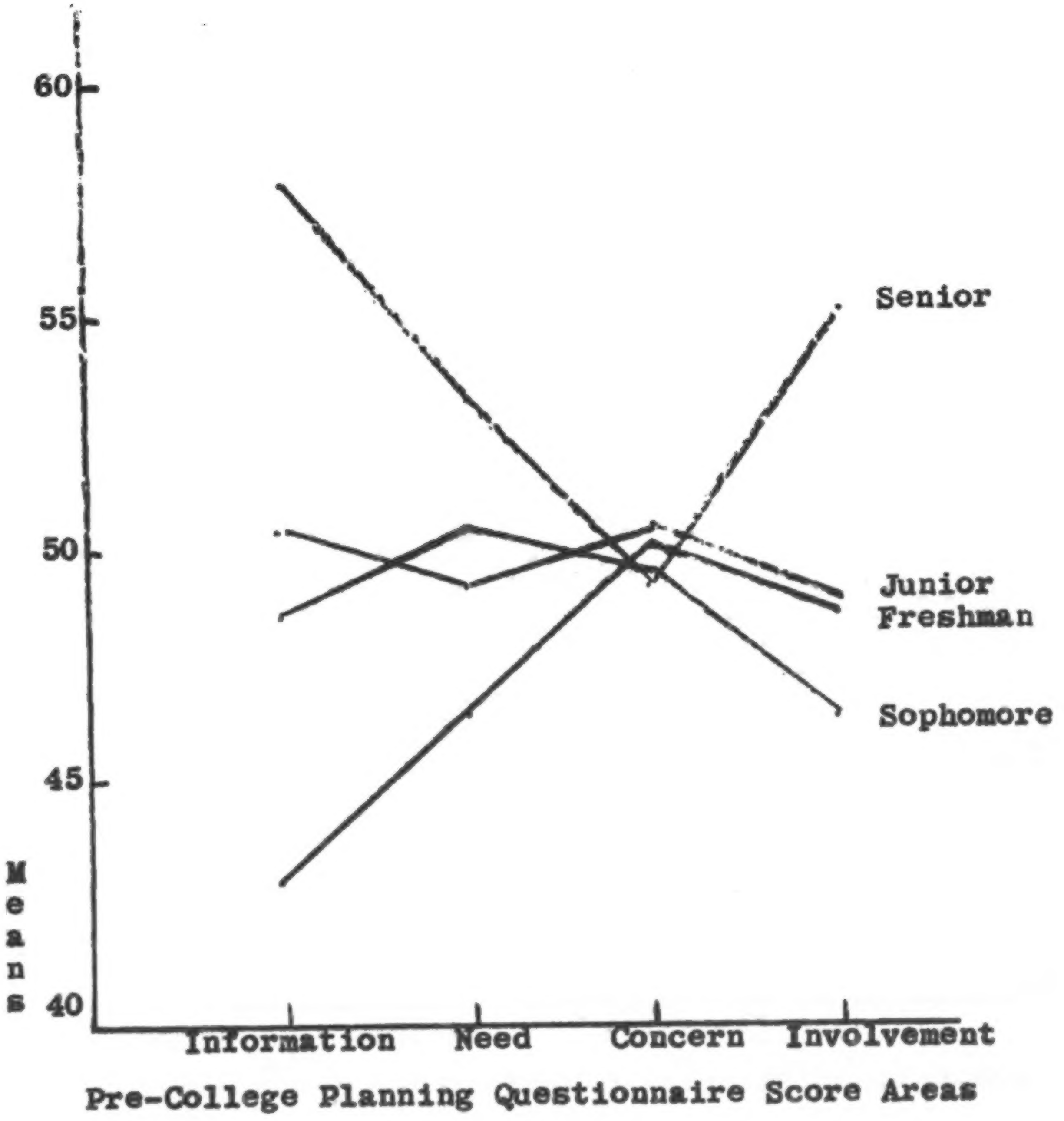

FIGURE 9

DIFFERENCE IN MEANS AMONG FRESHMAN, SOPHOMORE, JUNIOR, AND SENIOR CLASS STUDENTS IN THE DIFFERENT SCORE AREAS

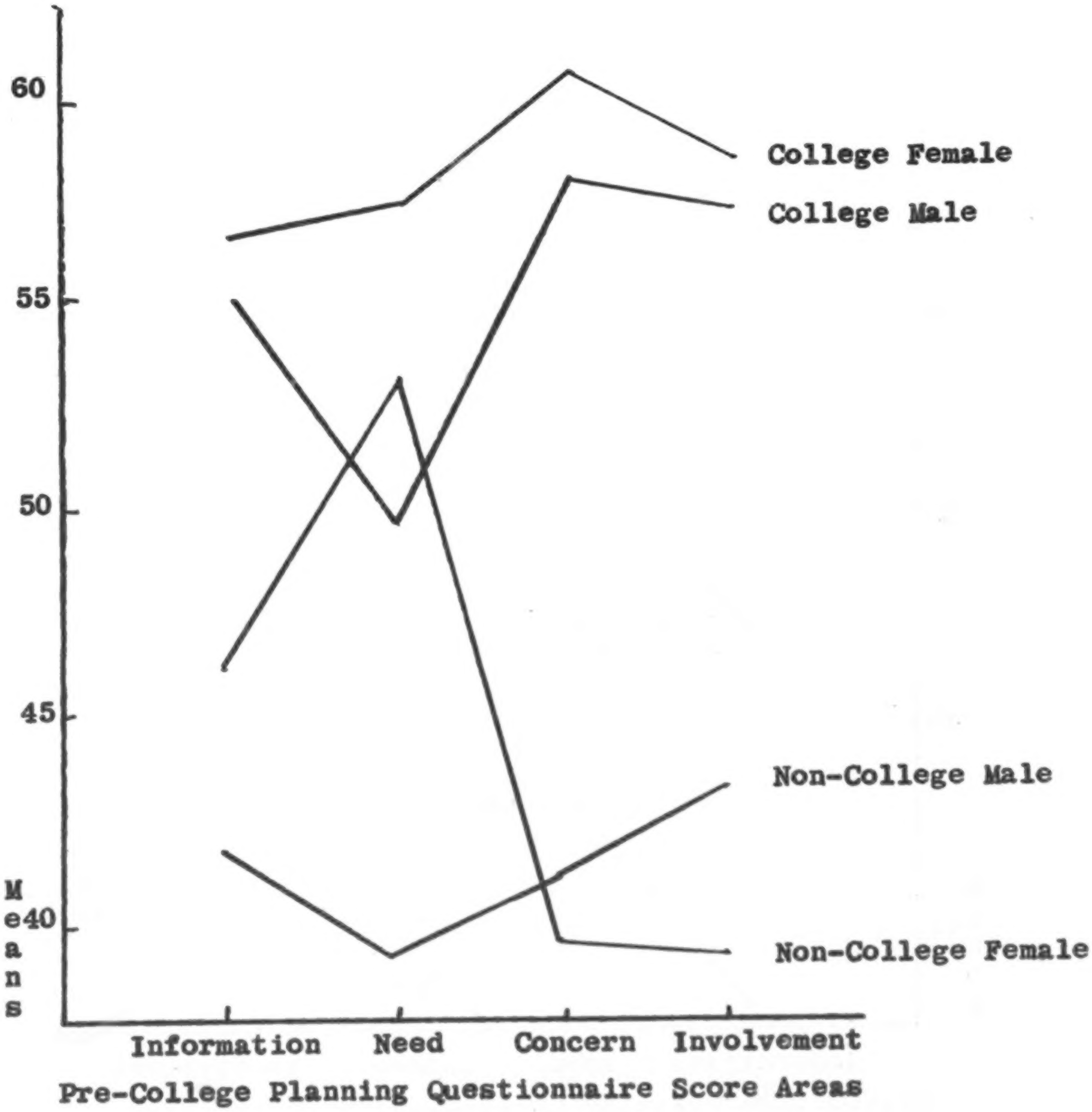

FIGURE 10

DIFFERENCE IN MEANS AMONG COLLEGE PLAN AND NON-COLLEGE PLAN MALE AND FEMALE STUDENTS IN THE DIFFERENT SCORE AREAS

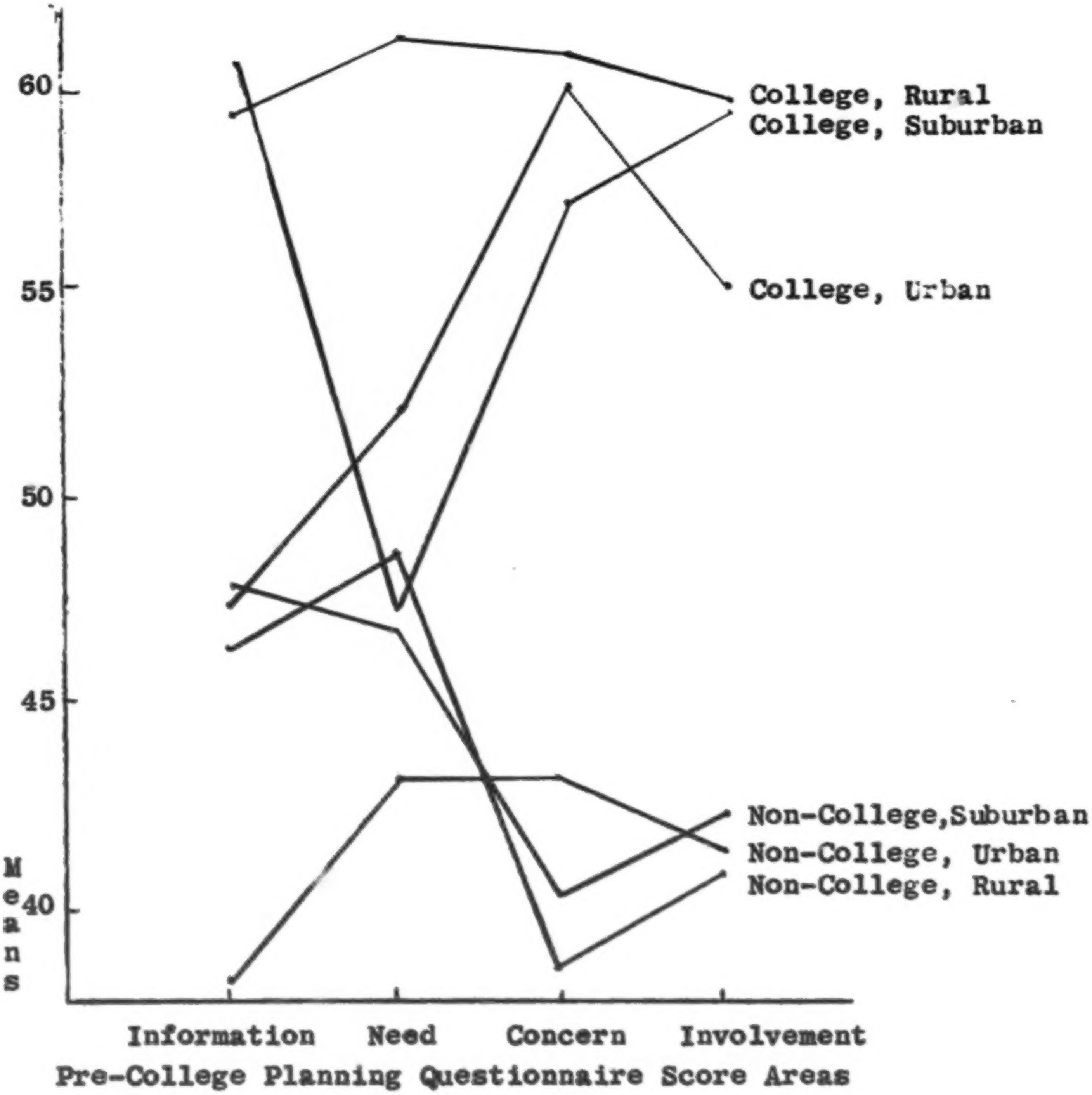

FIGURE 11

DIFFERENCE IN MEANS BETWEEN COLLEGE PLAN AND NON-COLLEGE PLAN STUDENTS AMONG THE URBAN HIGH SCHOOL, THE RURAL HIGH SCHOOL, AND THE SUBURBAN HIGH SCHOOL IN THE DIFFERENT SCORES AREAS

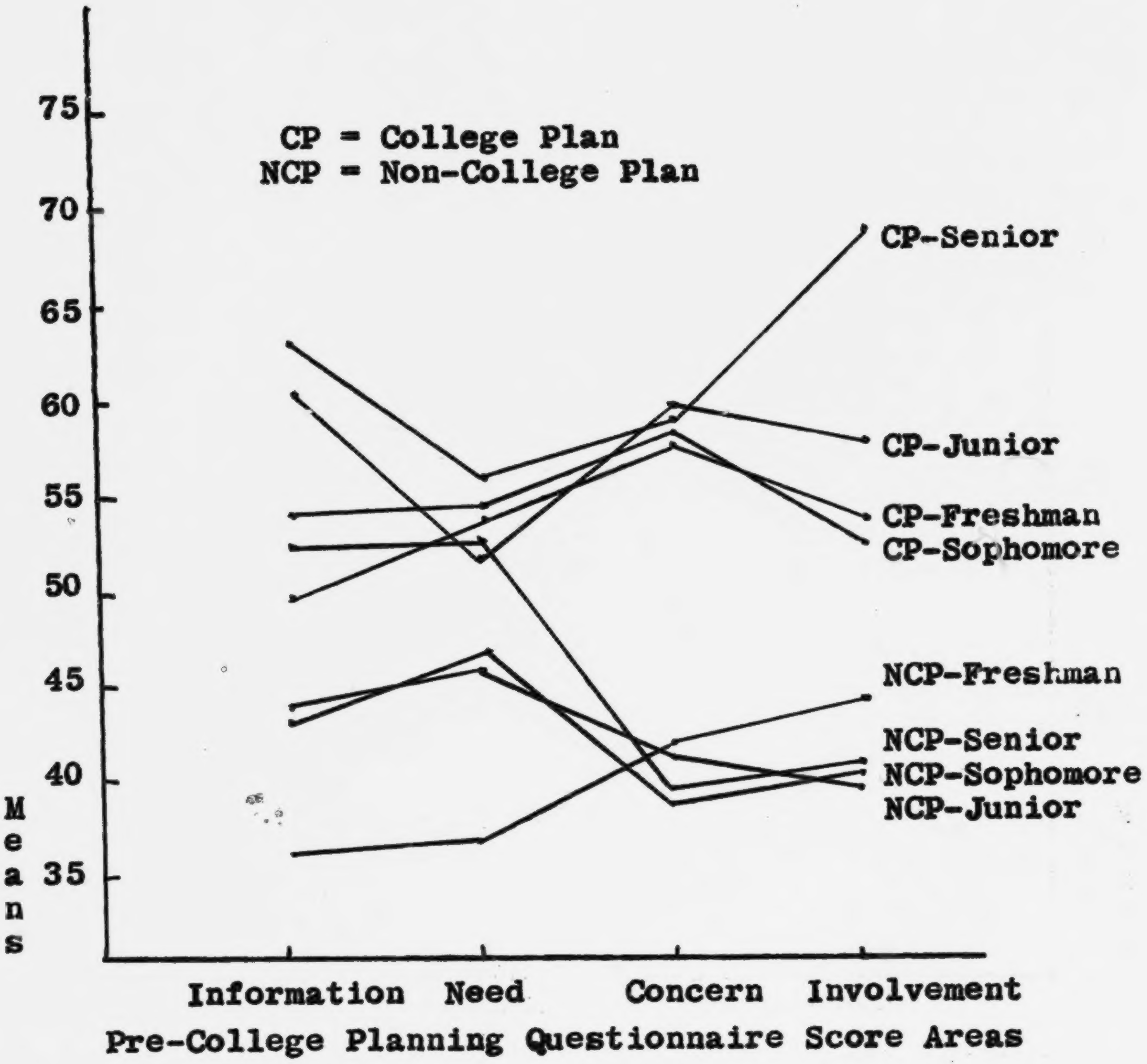

FIGURE 12

DIFFERENCE IN MEANS AMONG COLLEGE PLAN AND NON-COLLEGE PLAN FRESHMAN, SOPHOMORE, JUNIOR, AND SENIOR CLASS STUDENTS IN THE DIFFERENT SCORE AREAS

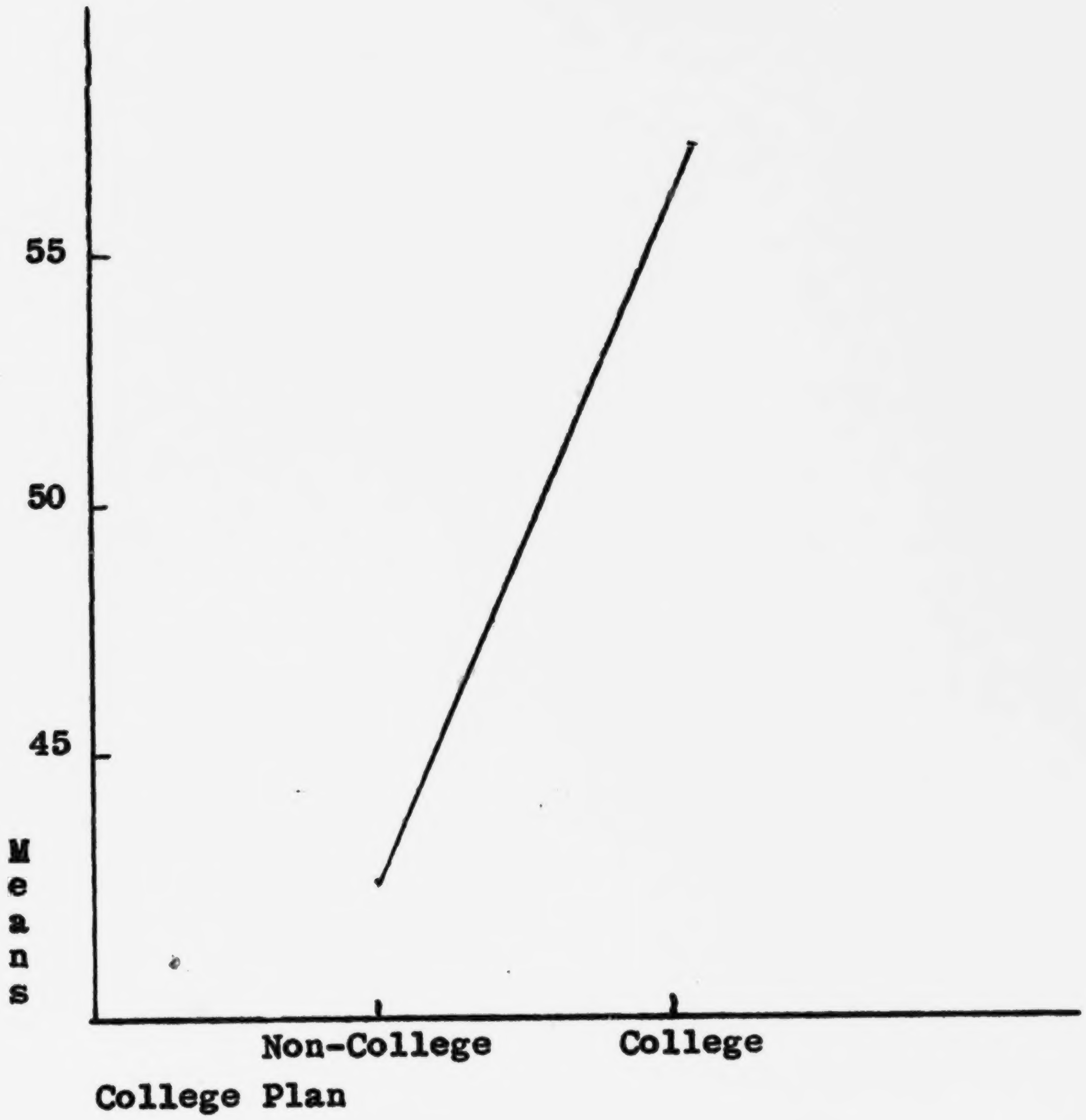

FIGURE 13

DIFFERENCE IN MEANS BETWEEN THE URBAN HIGH SCHOOL COLLEGE PLAN AND NON-COLLEGE PLAN STUDENTS ON AVERAGE TOTAL SCORE

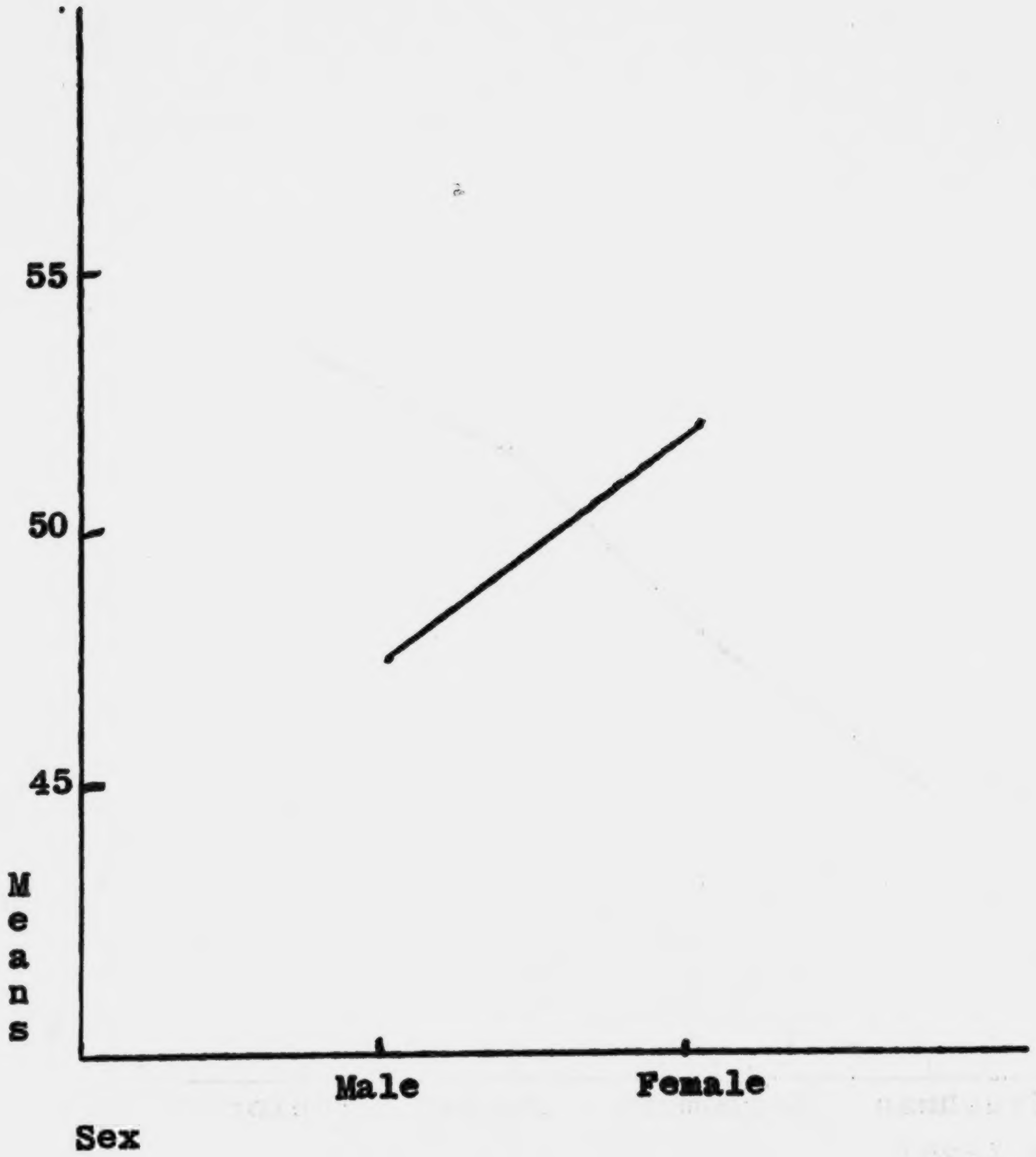

FIGURE 14

DIFFERENCE IN MEANS BETWEEN THE URBAN HIGH SCHOOL MALE AND FEMALE STUDENTS ON AVERAGE TOTAL SCORE

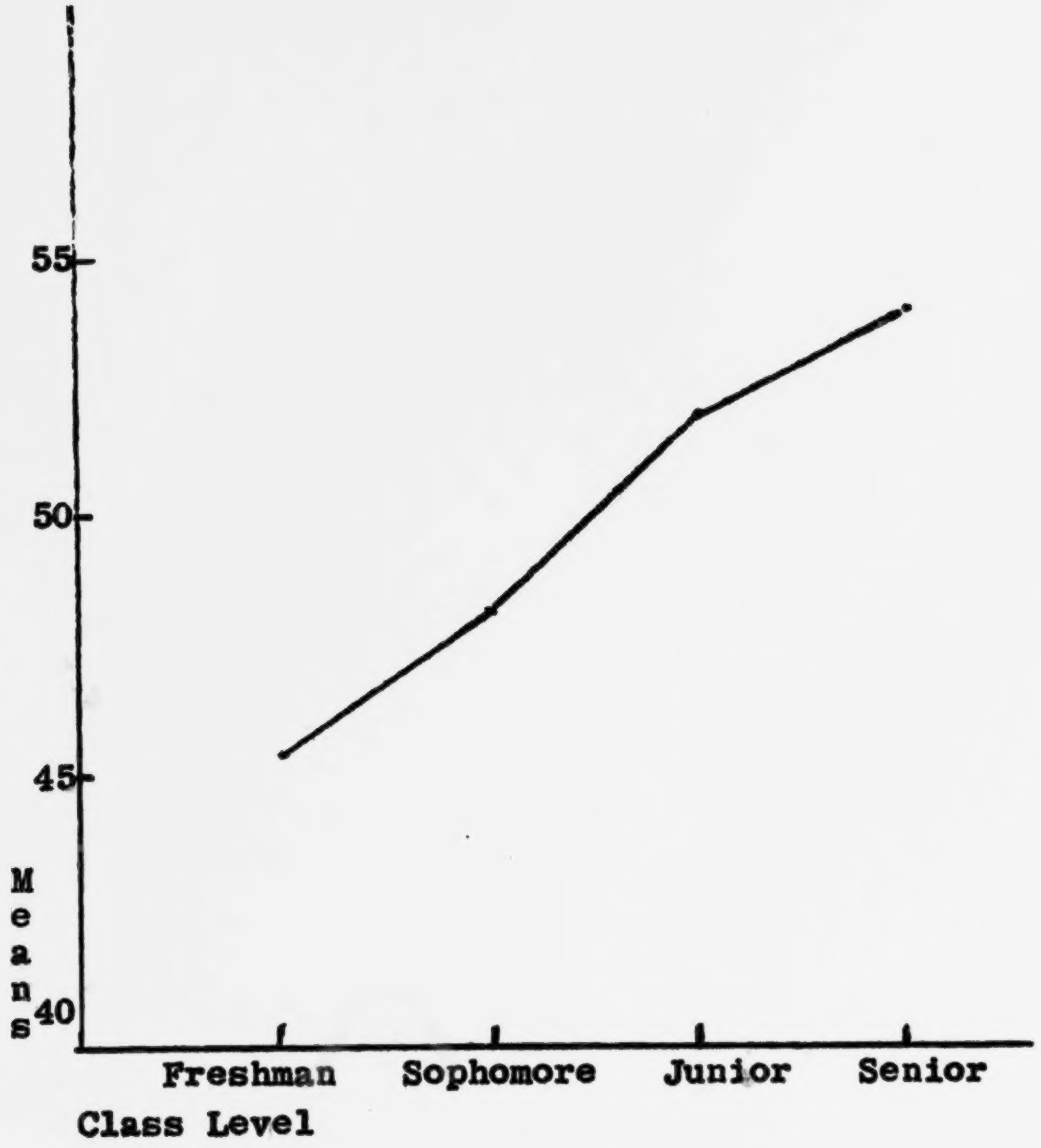

FIGURE 15

DIFFERENCE IN MEANS AMONG THE RURAL HIGH SCHOOL FRESHMAN, SOPHOMORE, JUNIOR, AND SENIOR CLASS STUDENTS ON AVERAGE TOTAL SCORE

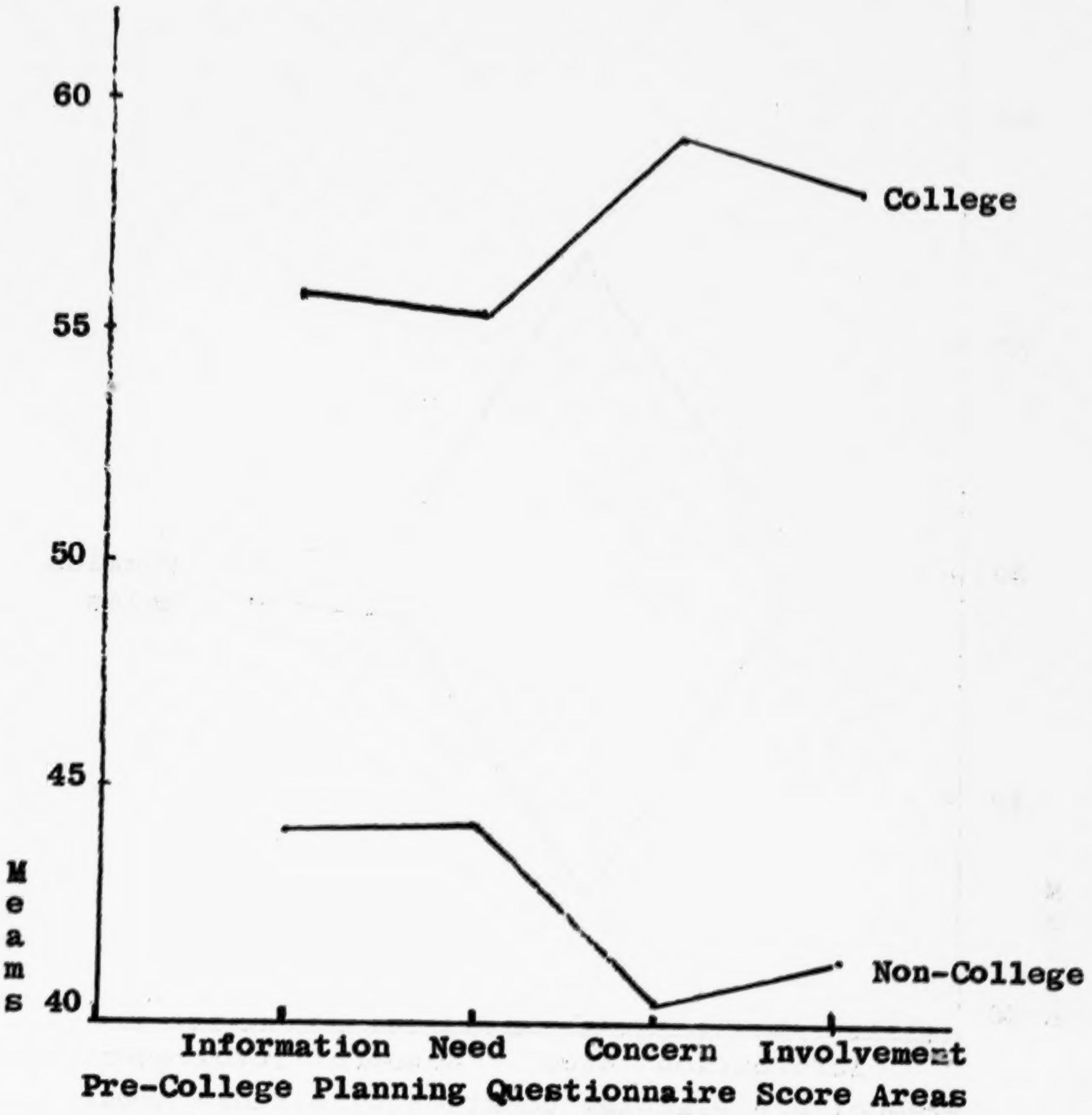

FIGURE 16

DIFFERENCE IN MEANS BETWEEN THE URBAN HIGH SCHOOL COLLEGE PLAN AND NON-COLLEGE PLAN STUDENTS IN THE DIFFERENT SCORE AREAS

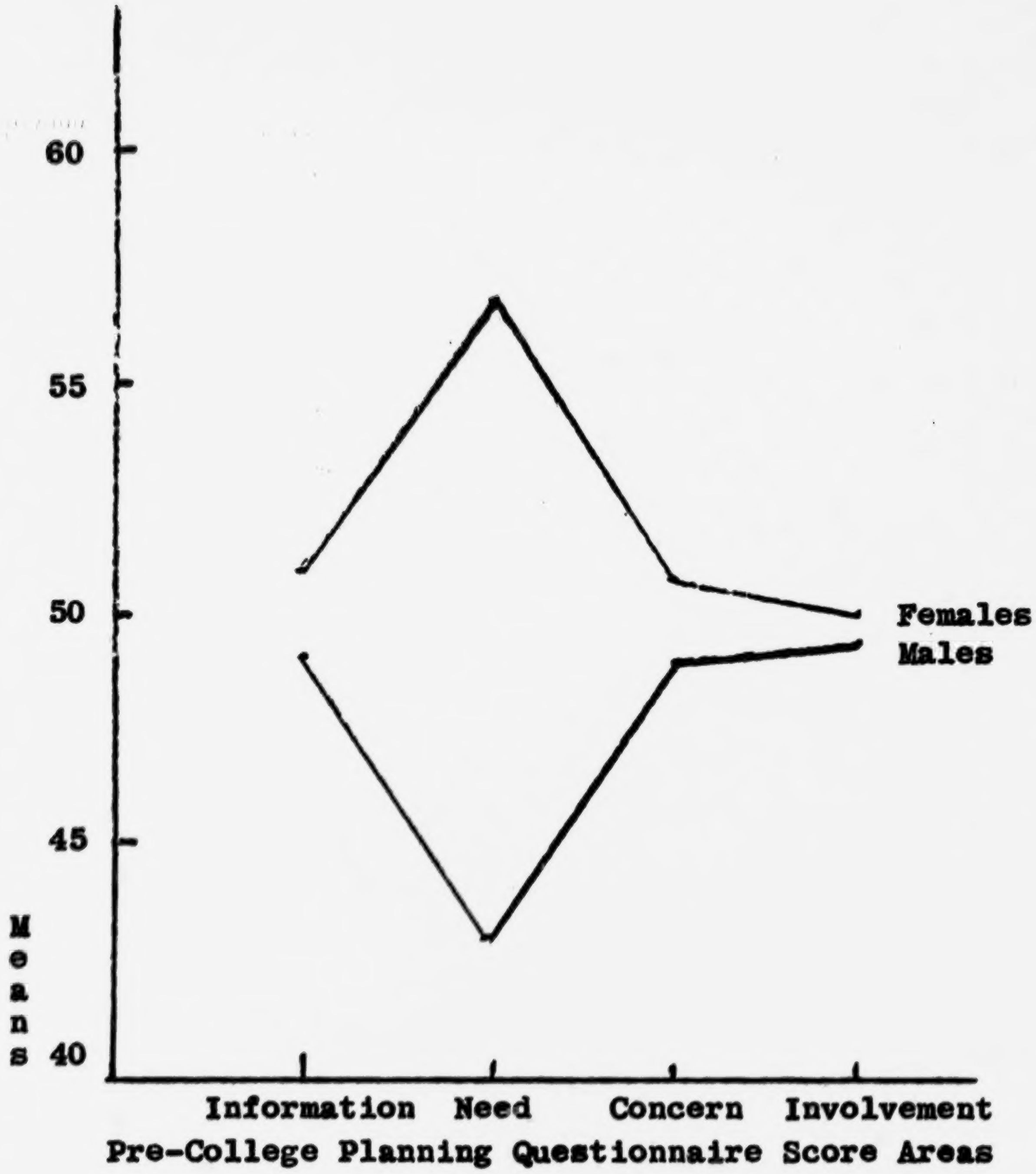

FIGURE 17

DIFFERENCE IN MEANS BETWEEN THE URBAN HIGH SCHOOL MALE AND FEMALE STUDENTS IN THE DIFFERENT SCORE AREAS

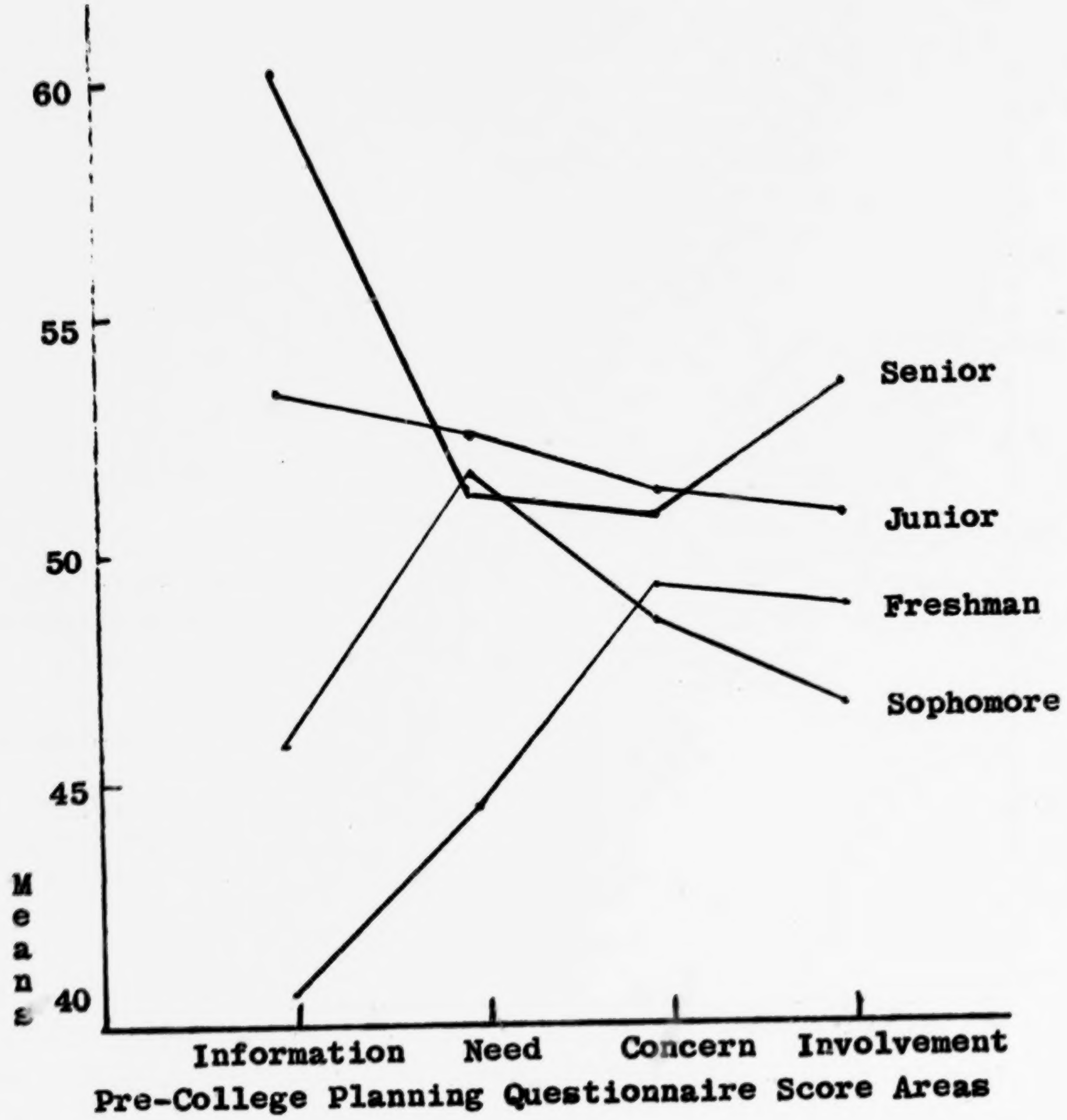

FIGURE 18

DIFFERENCE IN MEANS AMONG THE URBAN HIGH SCHOOL FRESHMAN, SOPHOMORE, JUNIOR, AND SENIOR CLASS STUDENTS IN THE DIFFERENT SCORE AREAS

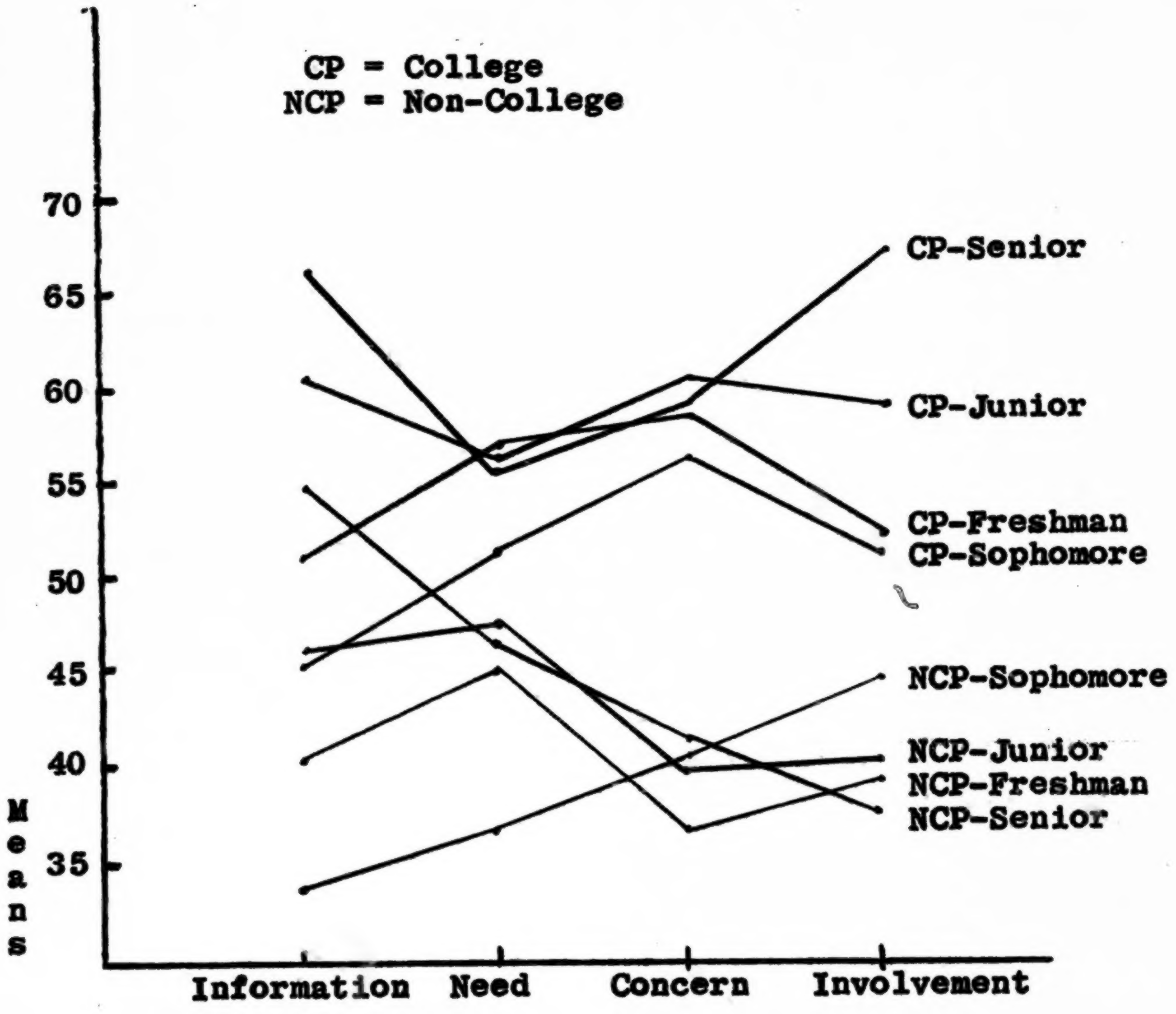

FIGURE 19

DIFFERENCE IN MEANS AMONG THE URBAN HIGH SCHOOL COLLEGE PLAN AND NON-COLLEGE PLAN FRESHMAN, SOPHOMORE, JUNIOR, AND SENIOR CLASS STUDENTS IN THE DIFFERENT SCORE AREAS

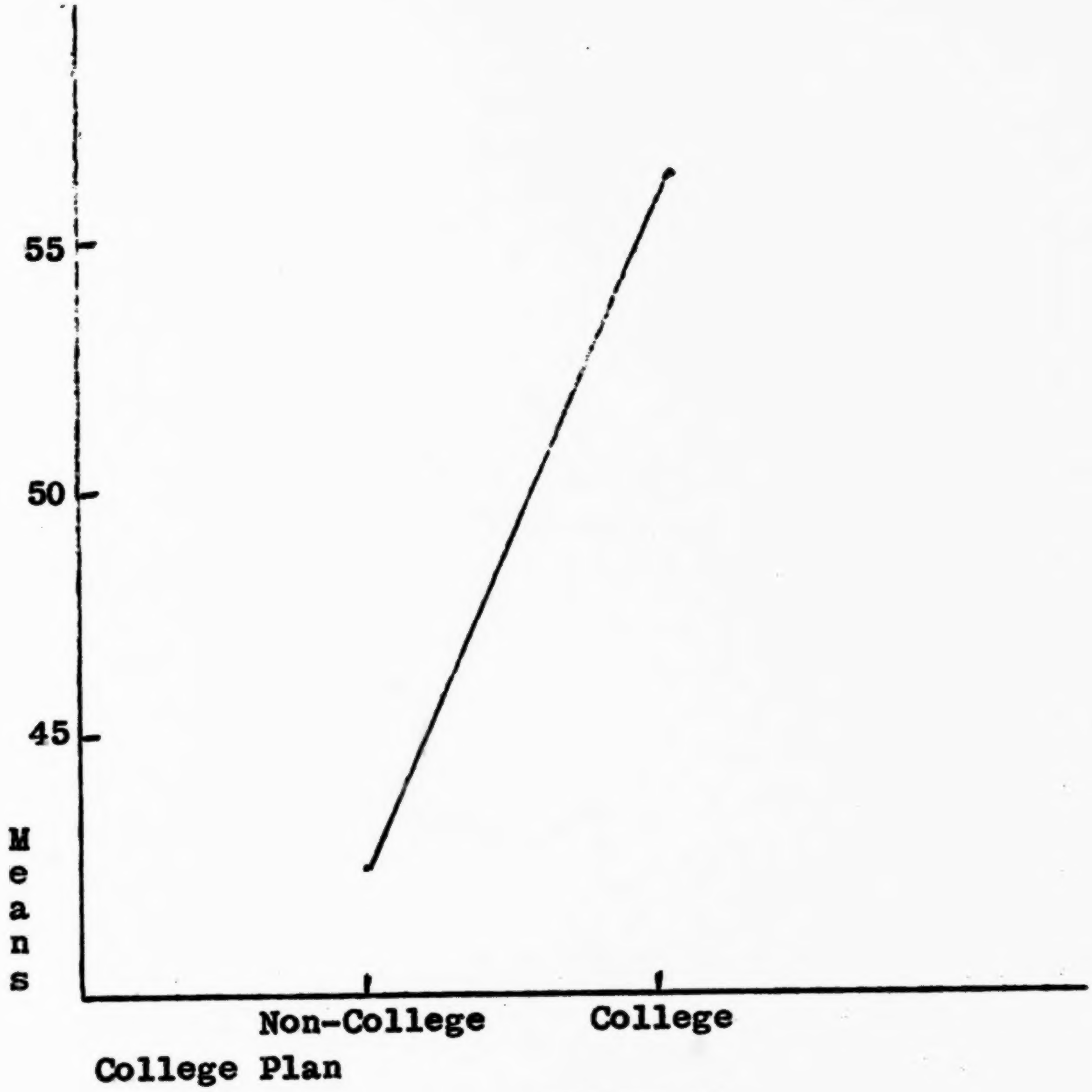

FIGURE 20

DIFFERENCE IN MEANS BETWEEN THE RURAL HIGH SCHOOL COLLEGE PLAN AND NON-COLLEGE PLAN STUDENTS ON AVERAGE TOTAL SCORE

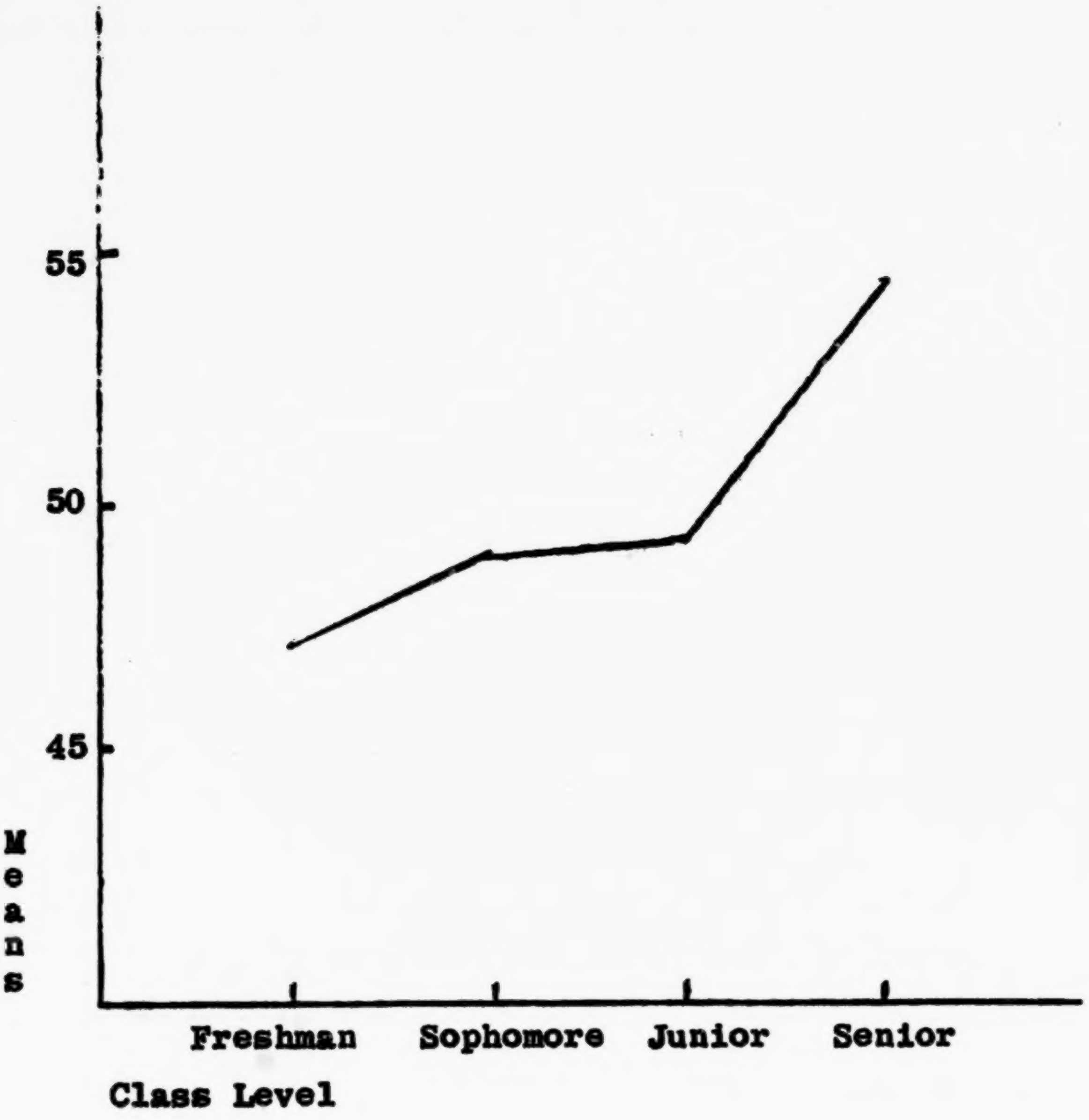

FIGURE 21

DIFFERENCE IN MEANS AMONG THE RURAL HIGH SCHOOL FRESHMAN, SOPHOMORE, JUNIOR, AND SENIOR CLASS STUDENTS ON AVERAGE TOTAL SCORE

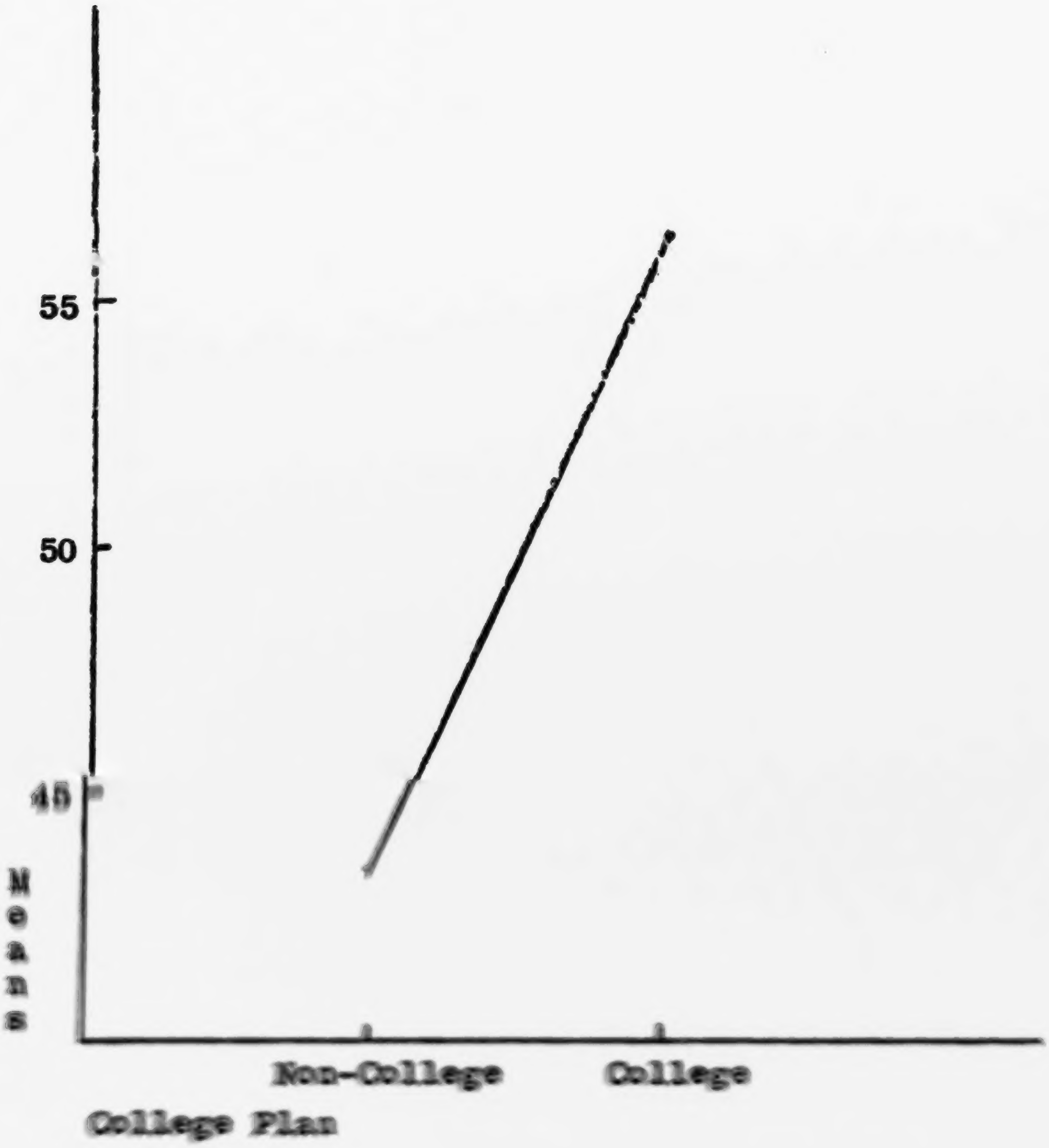

FIGURE 22

DIFFERENCE IN MEANS BETWEEN THE SUBURBAN HIGH SCHOOL
COLLEGE PLAN AND NON-COLLEGE PLAN STUDENTS
ON AVERAGE TOTAL SCORE

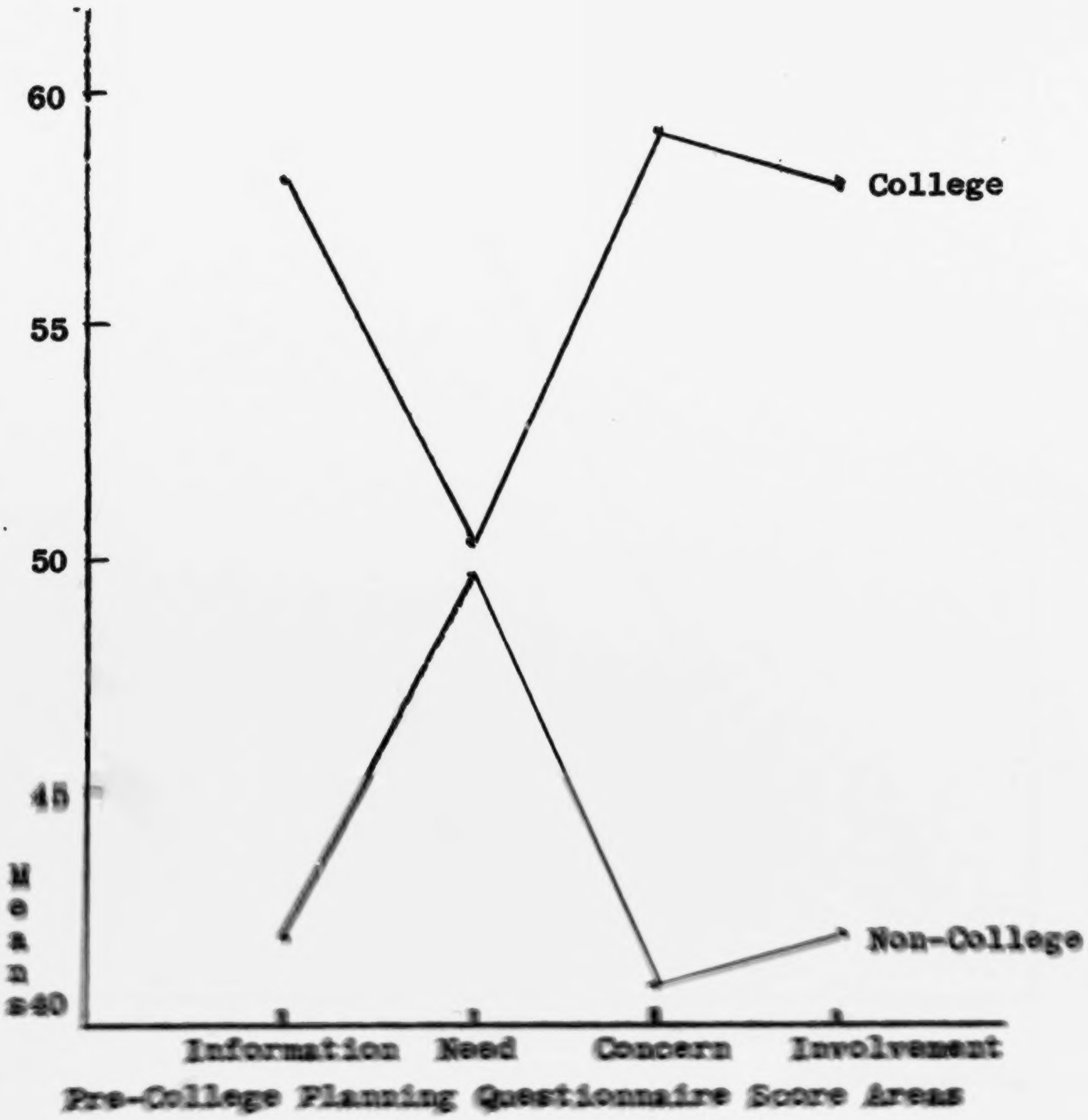

FIGURE 23

DIFFERENCE IN MEANS BETWEEN THE SUBURBAN HIGH SCHOOL COLLEGE PLAN AND NON-COLLEGE PLAN STUDENTS IN THE DIFFERENT SCORE AREAS

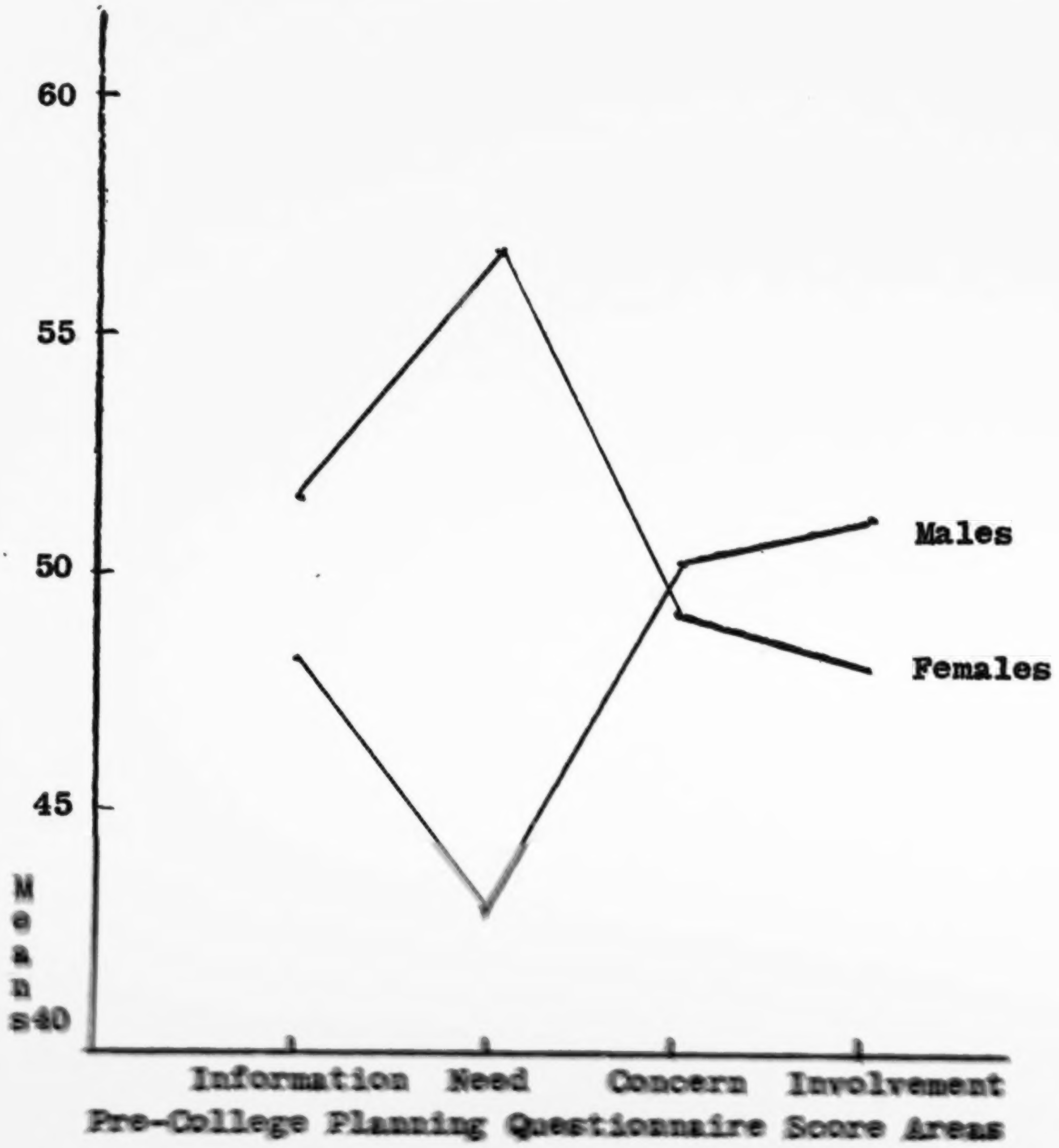

FIGURE 24

DIFFERENCE IN MEANS BETWEEN THE SUBURBAN HIGH SCHOOL
MALE AND FEMALE STUDENTS IN THE
DIFFERENT SCORE AREAS